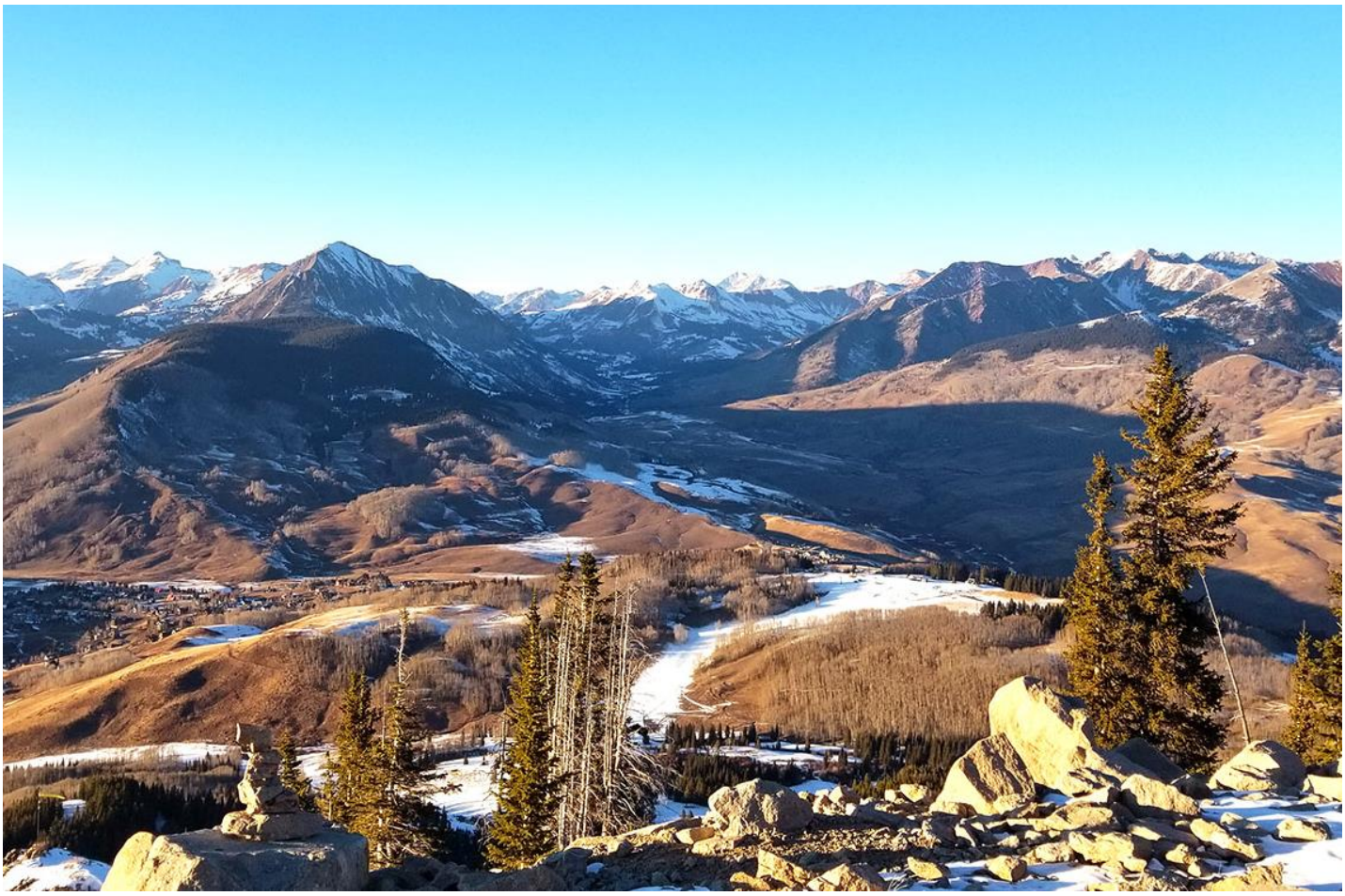
USDA United States Department of Agriculture
Natural Resources Conservation Service

Colorado
Water Supply Outlook Report
January 1, 2018



A mid-mountain vantage point at Crested Butte Ski area provides a view of the low-snow conditions in the surrounding area. On December 19th, when this photo was taken, snowpack in the Gunnison River Basin ranked the lowest it has been in the past 37 years and remains so at the writing of this report. Much of the lower mountain at Crested Butte completely lacked snow coverage. Similar low-snow conditions extend up significant portions of the Slate River drainages, as well as throughout much of Colorado, particularly in the southern and central mountains. Minimal snow accumulations have occurred since this image was taken, furthering the deficit of snow, and dwindling the prospect of normal water supplies this coming spring.

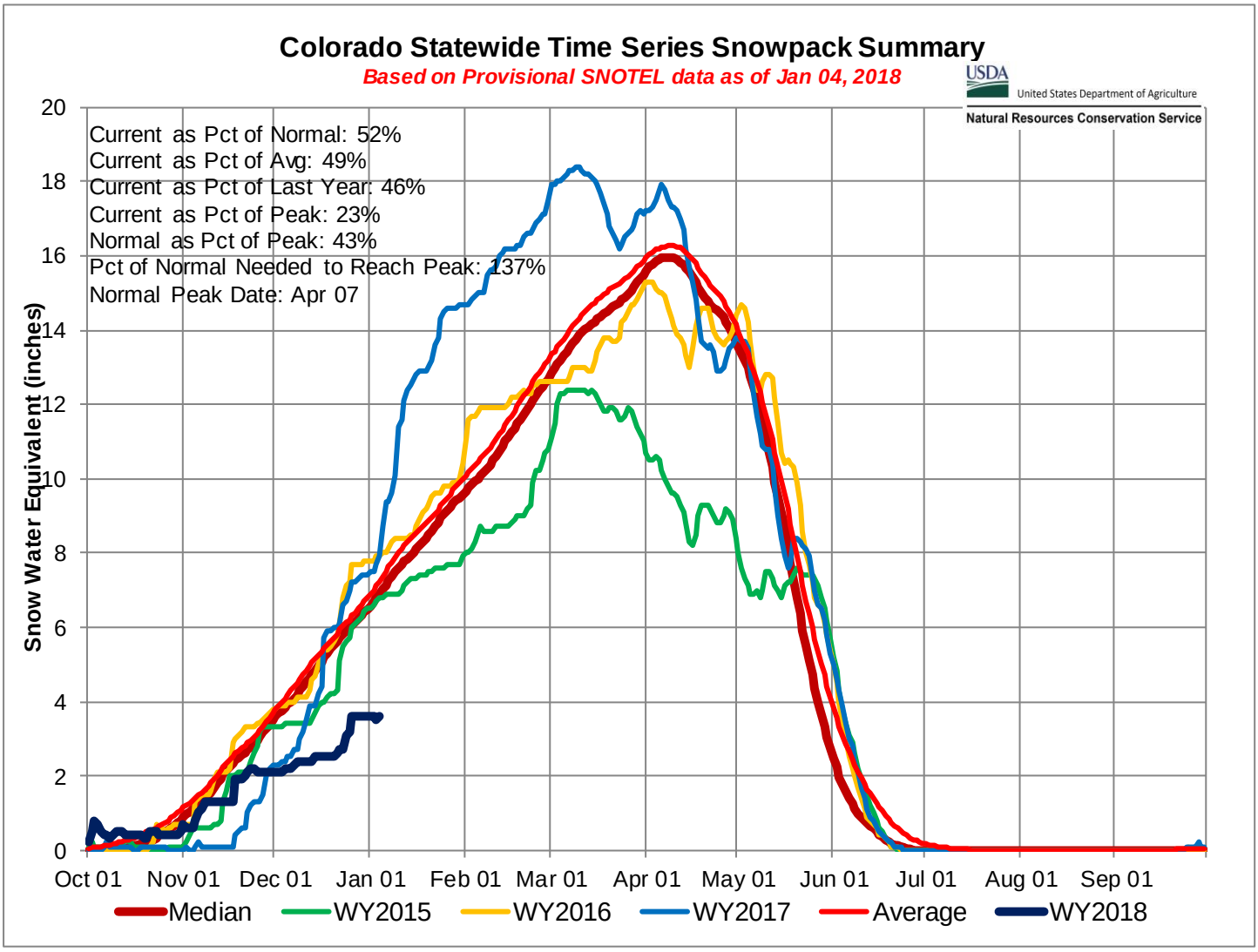
Photo By: Brian Domonkos Date: December 19, 2017

REMINDER: We are soliciting field work photos from the field again this year. Each month we will pick one to grace the cover of this report! Please include information on where, when and of who/what the photo was taken.

Contents

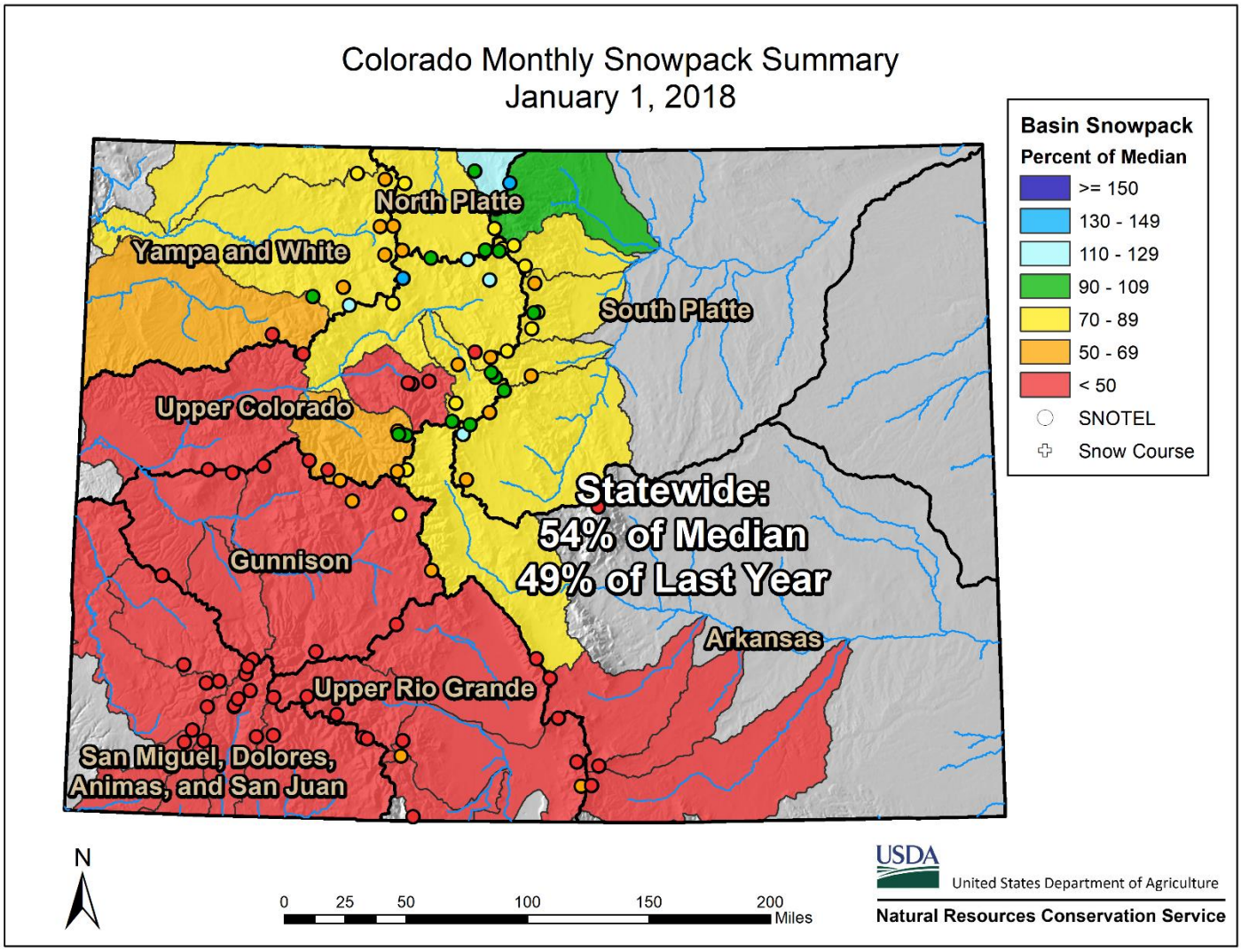
Colorado Statewide Water Supply Conditions

Summary



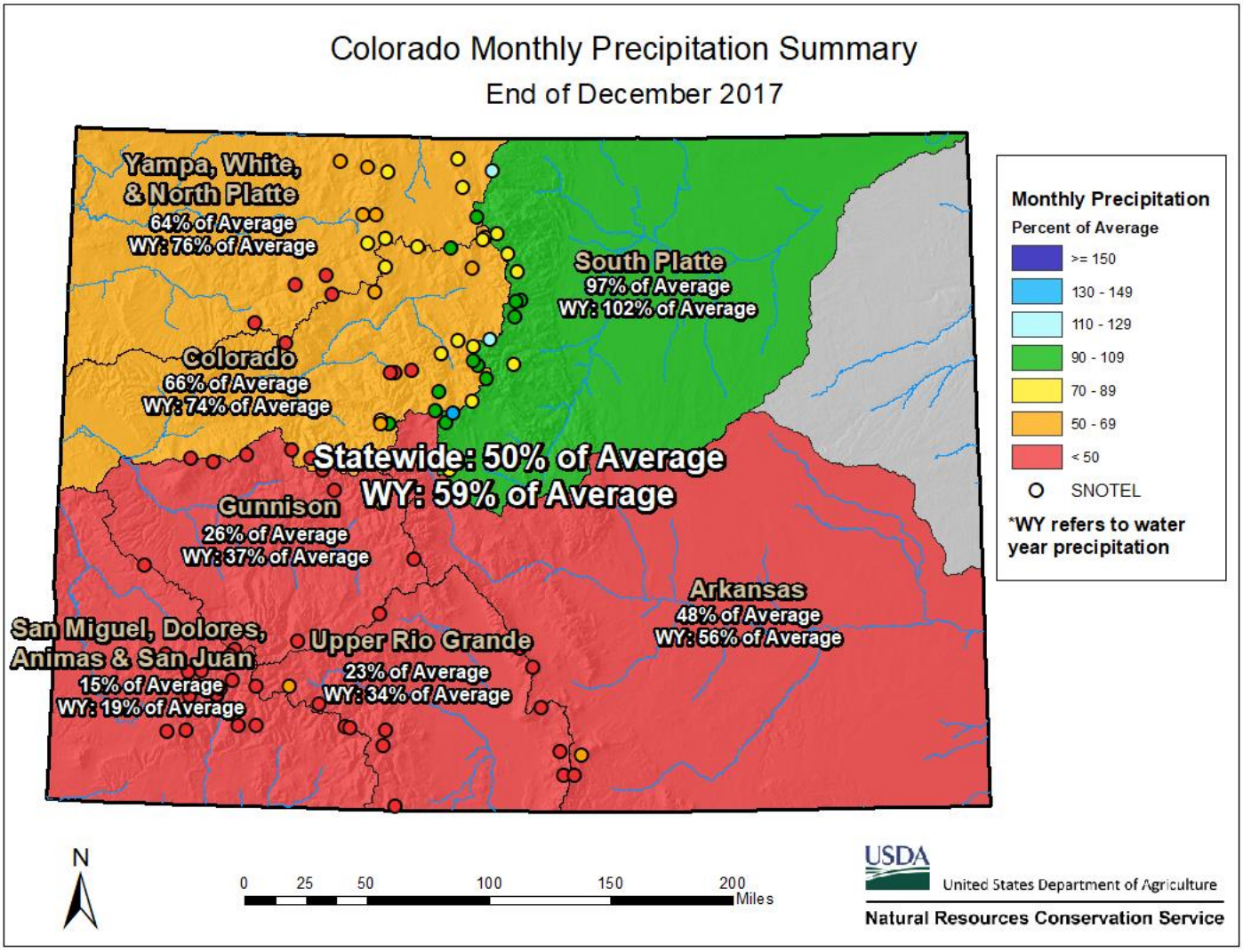
The 2018 water year has been off to very dry start across Colorado, with the southern half of the state receiving notably less precipitation than the northern half. As of January 5th, the statewide snow water equivalent (SWE) was the second lowest on record. There is a wide range of snowpack levels across the state, from a low of 23 percent of normal in the combined San Miguel, Dolores, Animas, and San Juan basins to a high of 87 percent in the North and South Platte basins, with the statewide SWE being 54 percent of normal. These same spatial trends exist in water year-to-date precipitation values with an even broader spread. The aforementioned basins of southwest Colorado have received 19 percent of average precipitation since October 1st and the South Platte has received 102 percent, with the entire state averaging out at 59 percent of average. Given the dry conditions to date, it is generally viewed as good news that all major river basins in the state are currently holding above average reservoir storage. Of particular note is the Rio Grande basin which has only 29 percent of normal snowpack but despite having been below the long-term average for the vast majority of time since 2001, has now had above average reservoir storage since last June. Streamflow forecasts largely reflect the spatial patterns observed on precipitation and accumulated snowpack, with forecasts being much lower in the southern half of Colorado and higher in the north. That said, currently all streamflow forecasts in the state of Colorado are for below average spring and summer volumes.

Snowpack



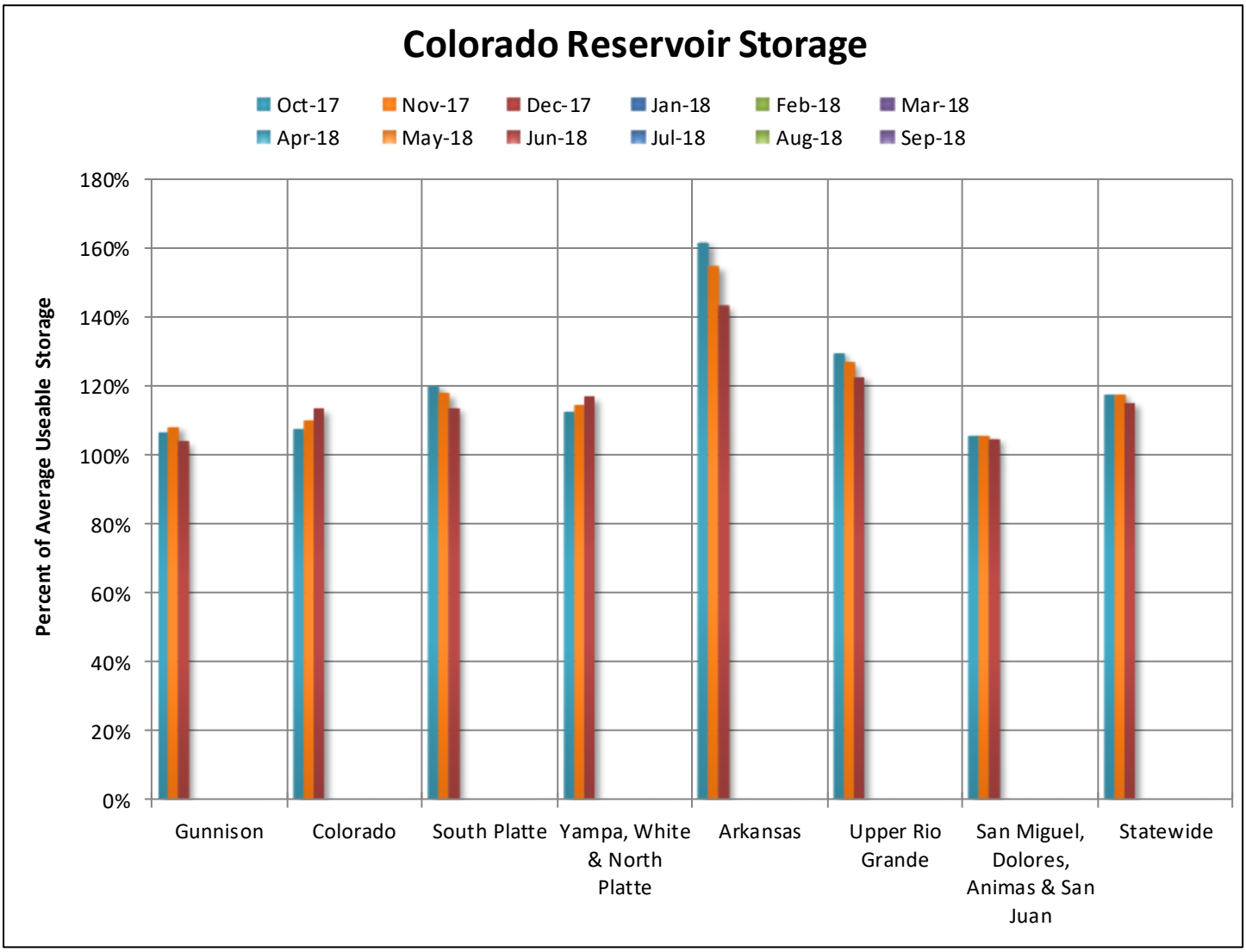
The snowpack across most of Colorado's mountains is at dismal levels after a dry start to the accumulation season. On January 1st, 34 of the 104 SNOTEL sites with at least 10 years of data collection had record low snow water equivalent (SWE) amounts, another 13 had the second lowest SWE accumulations, and about 90 percent of sites were reporting a snowpack below median levels. Almost half of river sub-basins in Colorado are below 50 percent of normal snowpack, with most of these drainages concentrated in the southern portion of the state. Additionally, four of the seven major river basins are below 50 percent of normal, and all are below 90 percent of the median for January 1st. The combined San Miguel Dolores, Animas, and San Juan River basins have the lowest snowpack, with respect to normal, and collectively have only accumulated 23 percent of median snowpack for January 1st. The other southern basins are also experiencing low-snow conditions, with the Upper Rio Grande and Gunnison River basins at 29 and 37 percent of the median respectively, and the Arkansas at 48 percent of median, bolstered mainly by higher accumulations in the northern reaches of the basin. Snowpack conditions improve slightly moving northward, where the combined Yampa and White River basins are at 65 percent of the median and the Colorado River basin is at 68 percent. The South Platte and North Platte, the northernmost basins east of the Continental Divide, contain the best snowpack, with respect to normal, and are both at 87 percent of the median. With about half of the snow accumulation season still ahead of us, there is still time for conditions to improve across the state. However, only about three months remain until Colorado's mountains typically reach their peak snowpack for the year, so the foundation that has been set does not provide a promising outlook for universally abundant snowmelt runoff this spring.

Precipitation



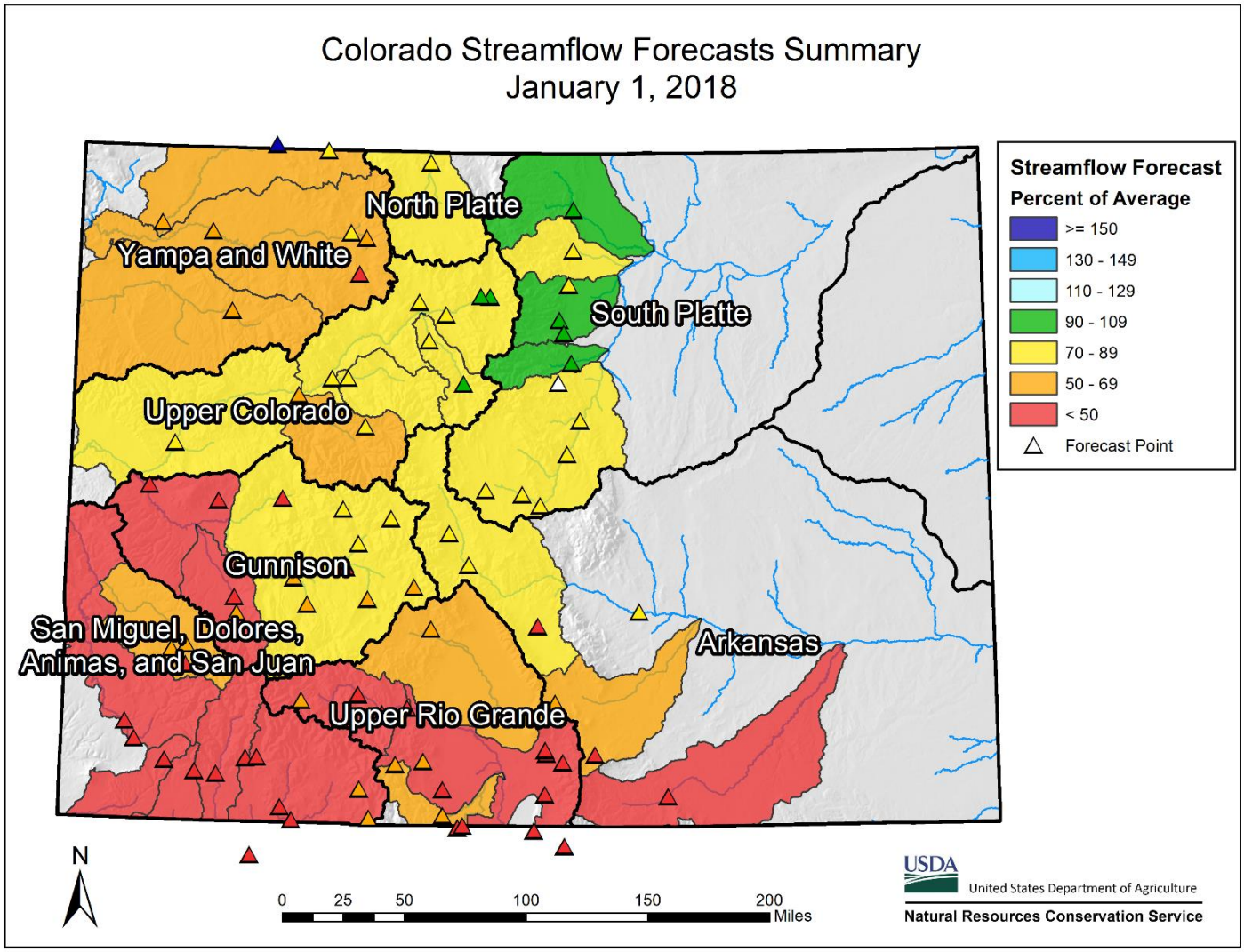
Dry conditions have dominated the 2018 water year for most of Colorado's major river basins. The majority of storm events reaching the state have skirted the southwest basins almost entirely. The combined San Miguel, Dolores, Animas, and San Juan River basins have not exceeded 25 percent of average for a single month since the water year began on October 1st. Currently SNOTEL stations in those basins have received on average only a meager 2.1 inches of precipitation since October, bringing the basins to only 19 percent of average water year precipitation. The Upper Rio Grande and Gunnison River basins have not fared much better, and have remained below 50 percent of average monthly precipitation for each month this water year. These basins are currently at 34 and 37 percent of average, respectively, for year-to-date precipitation. The Arkansas River basin has received only slightly better precipitation accumulations since this fall, and water year-to-date precipitation is currently at 56 percent of average. The Upper Colorado and combined Yampa, White, and North Platte River basins are also well-below average at 74 and 76 percent of average, respectively, for the water year. The South Platte River basin is the anomaly in Colorado so far this year, and is currently at 102 percent of average for the water year. Ample precipitation in October, at 117 percent of average, provided the South Platte River basin a good start to water year, and subsequent months have remained only slightly below normal. Regardless, statewide precipitation is only at 59 percent of average for water year-to-date and Colorado's mountains have a lot of catching up to do to bring the statewide precipitation to near normal levels.

Reservoir Storage



While the 2018 water year has been off to a very dry start, Colorado reservoir storage has remained above average in every major river basin for the last three months. These values range from a low of 104 percent of average in the Gunnison basin to a high of 143 percent average storage in the Arkansas basin. Statewide reservoir storage was 115 percent of average as of January 1st. These above average storage volumes may be particularly important in the Rio Grande, San Miguel, Dolores, Animas, and San Juan basins of southwest Colorado where snowpack and water year precipitation have been by far the lowest in the state. These storage levels come at a critical time to the Rio Grande, in particular, because with the exception of one spike in 2009 this basin has had below average storage levels since 2001, until last June when they finally reached above average levels and have remained so ever since. The basin is holding 123 percent of average storage as of January 1st. While still holding 105 percent of average reservoir storage the combined basins of southwest Colorado appear to be in a slightly more precarious situation at this point in the season because this region only has 23 percent of normal snowpack compared to the slightly higher 29 percent of the Rio Grande. Current streamflow forecasts for both areas are well below normal, so without a substantial increase in precipitation that reservoir storage will become critical this summer. The South Platte, Colorado, and combined Yampa, White, and North Platte basins are all holding between 113 and 117 percent of average reservoir storage.

Streamflow

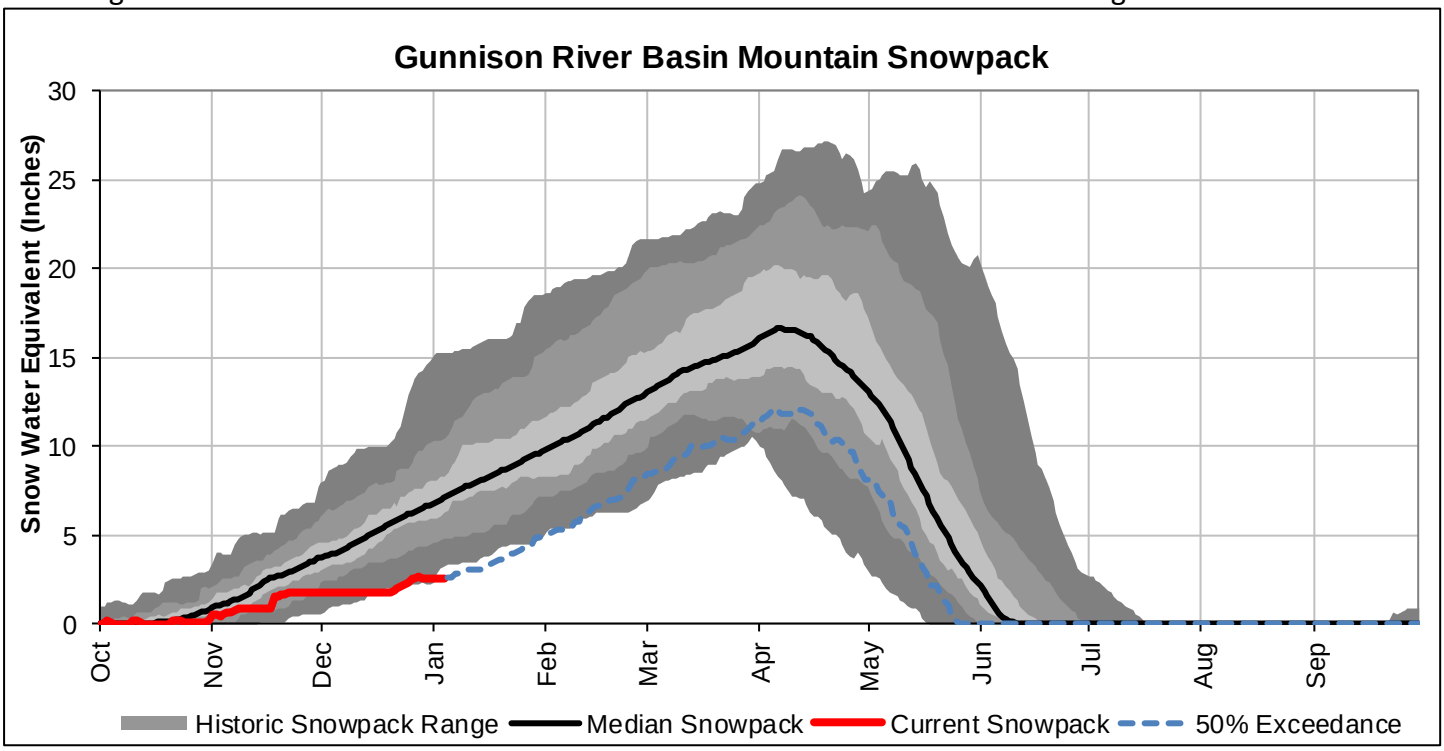


The current range of streamflow forecasts do not provide an optimistic outlook for superfluous runoff in Colorado this spring. Drastically below normal snowpack and precipitation, particularly in the southern half of the state, have caused forecasted streamflow volumes for most forecast points to fall below normal for all but the lowest exceedance probabilities. This indicates that although there is still much uncertainty in forecasts this early in the water year, conditions are such that changes are not likely to be drastic enough to elicit near normal streamflow volumes. However, there is a wide range of forecasted streamflow volumes for gages across Colorado, and there are several forecast points in the northern river basins that have a higher probability of reaching normal streamflow volumes. Following the trends in snowpack and precipitation, the bleakest April through July streamflow volumes are anticipated for the Upper Rio Grande and combined San Miguel, Dolores, Animas, and San Juan River basins. Here, the entire suite of forecasts fall below normal. Therefore, if current conditions prevail, there is less than a 10 percent probability of reaching normal flows at all but two forecast points and the 50 percent exceedance forecasts are calling for flows ranging from 28 to 63 percent of average. Forecasts in the Gunnison River basin are for similarly low volumes, ranging from 33 to 78 percent of normal. Many forecasts in the Colorado and combined Yampa and White River basins are also well below normal. Forecast points on some tributaries do have a better outlook, leading to a wide range of anticipated streamflows, from 45 to 92 percent of average. Forecast points in the North and South Platte River basins are the most likely to achieve normal flows given current snowpack and precipitation conditions and range from 73 percent to 94 percent of average. There is still time for a positive change to water supply conditions, but it would be wise to start planning for below normal runoff across much of Colorado.

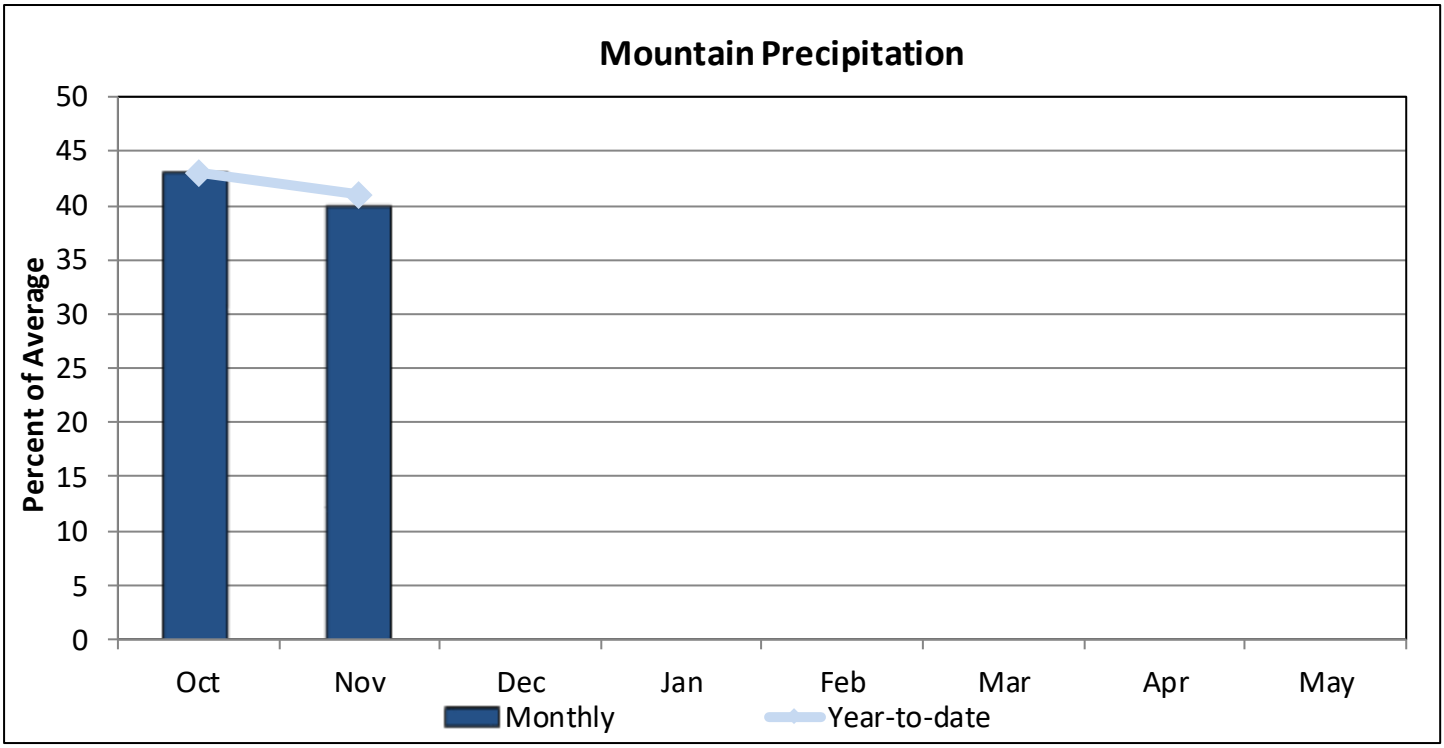
GUNNISON RIVER BASIN

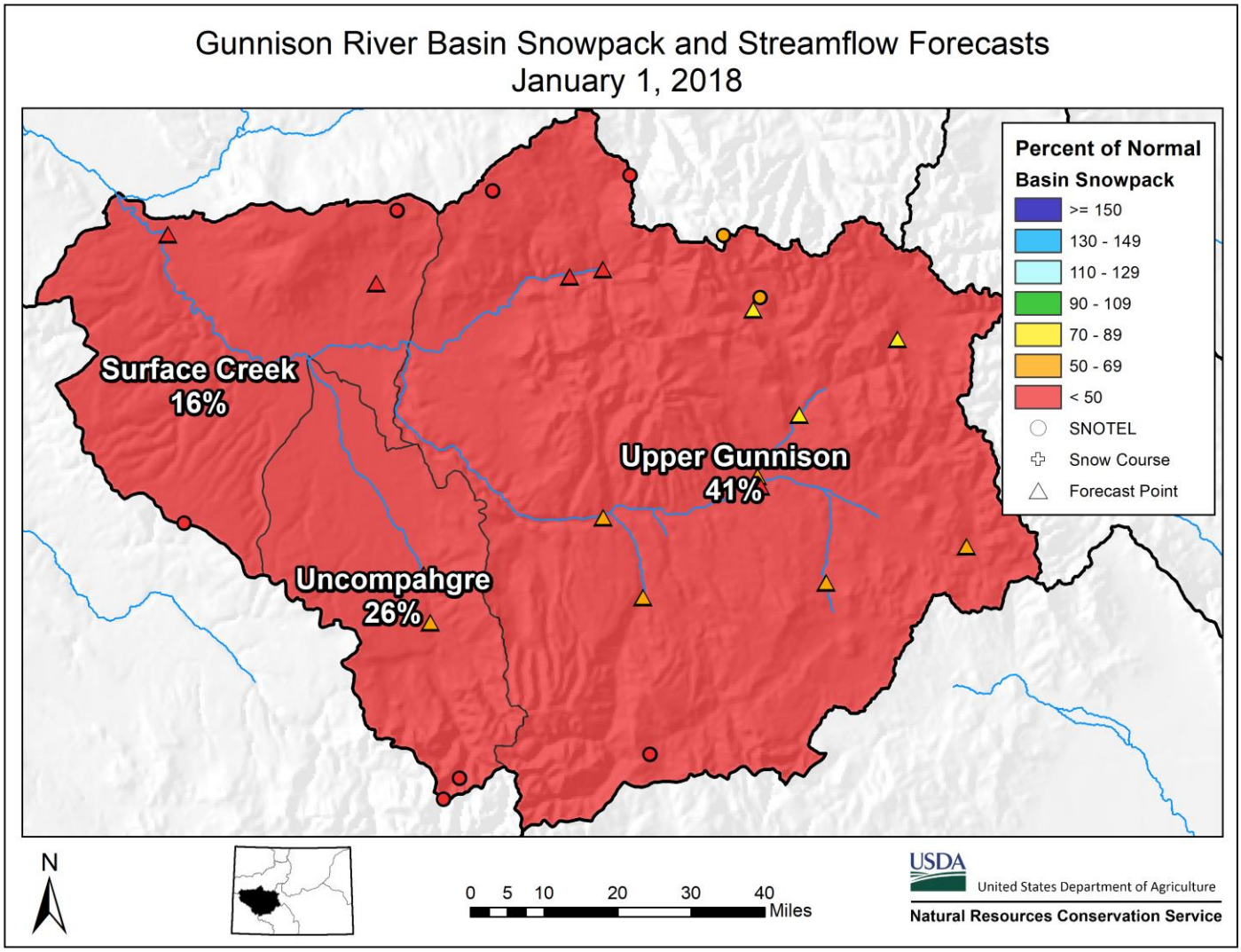
January 1, 2018

Snowpack in the Gunnison River basin is below normal at 37% of the median. Precipitation for December was 26% of average which brings water year-to-date precipitation to 37% of average. Reservoir storage at the end of December was 104% of average compared to 103% last year. Current streamflow forecasts range from 78% of average for the Slate River near Crested Butte to 33% for Surface Creek at Cedaredge.



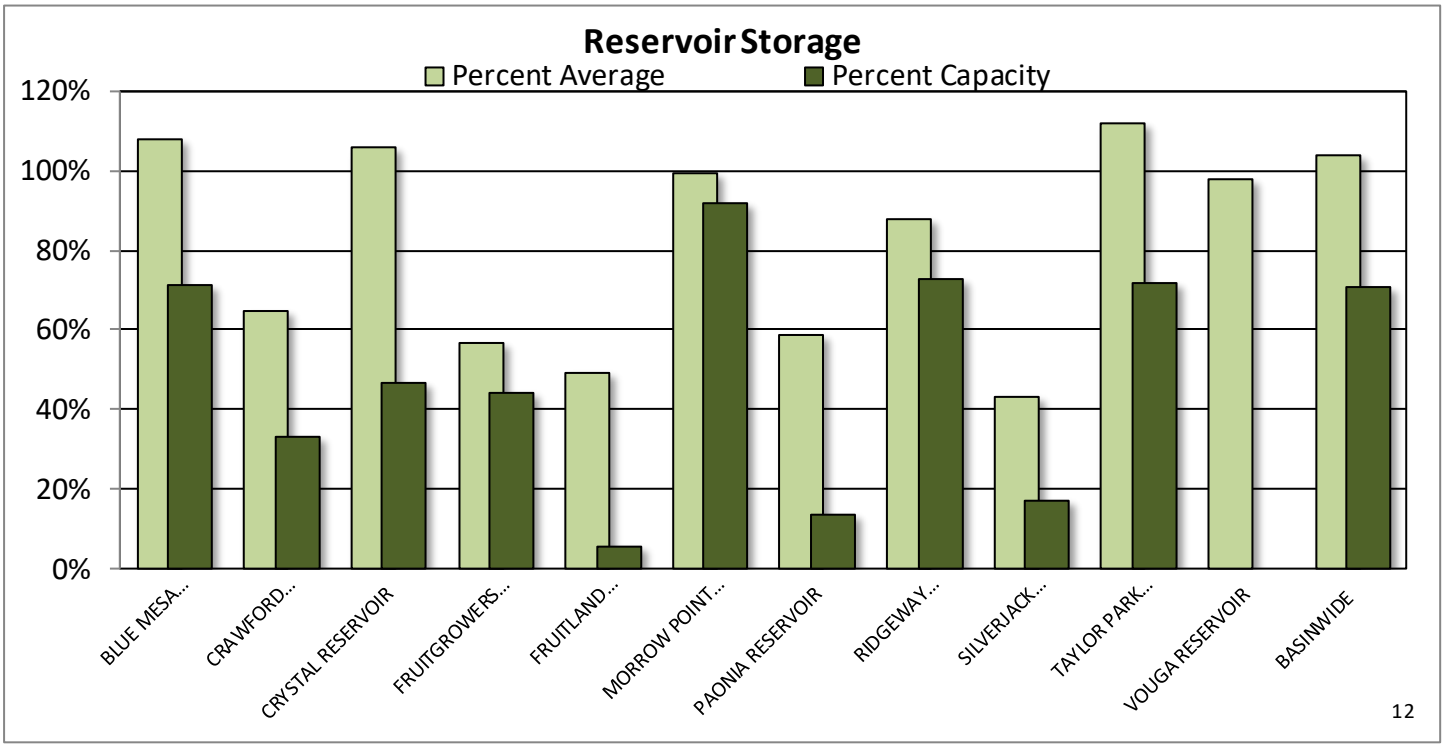
*SWE values calculated using daily SNOTEL data only





Watershed Snowpack Analysis January 1, 2018	# of Sites	% Median	Last Year % Median
UPPER GUNNISON BASIN	10	41%	118%
SURFACE CREEK BASIN	2	16%	125%
UNCOMPAHGRE BASIN	3	26%	116%
Basin-Wide Total	**13**	**37%**	**117%**

*SWE values calculated using first of month SNOTEL data and snow course measurements



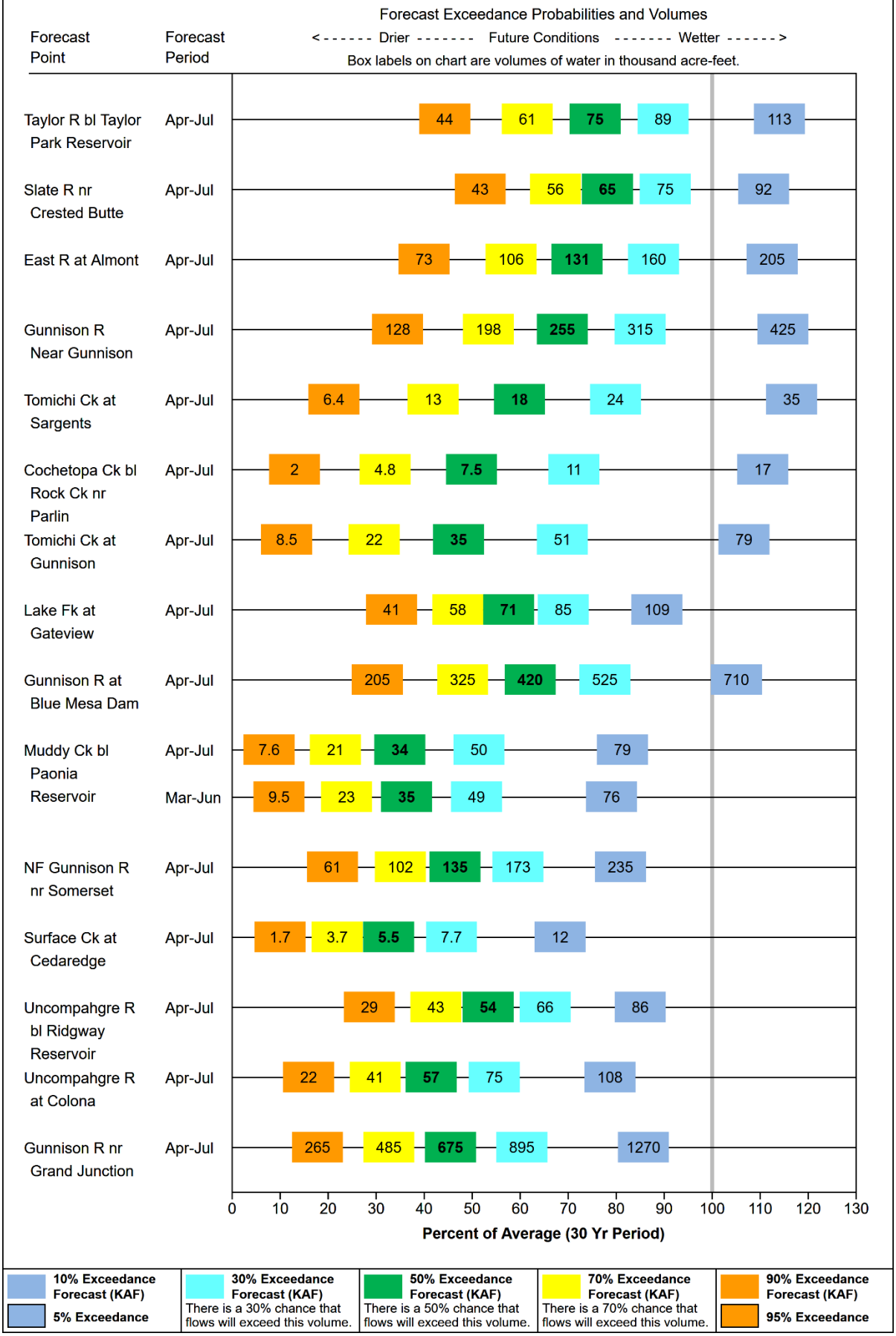
Reservoir Storage End of December 2017

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
BLUE MESA RESERVOIR	592.6	586.6	549.9	830
CRAWFORD RESERVOIR	4.6	6.0	7.1	14
CRYSTAL RESERVOIR	8.2	8.5	7.7	18
FRUITGROWERS RESERVOIR	1.6	2.8	2.8	4
FRUITLAND RESERVOIR	0.5	0.7	1.0	9
MORROW POINT RESERVOIR	111.0	112.0	111.6	121
PAONIA RESERVOIR	2.1	1.5	3.5	15
RIDGEWAY RESERVOIR	60.3	63.7	68.8	83
SILVERJACK RESERVOIR	2.2	2.2	5.0	13
TAYLOR PARK RESERVOIR	76.2	69.5	68.1	106
VOUGA RESERVOIR	0.6	0.9	0.7	0.92
BASINWIDE	859.8	854.4	826.2	1213.4
Number of Reservoirs	11	11	11	11

GUNNISON RIVER BASIN

Water Supply Forecasts

January 1, 2018

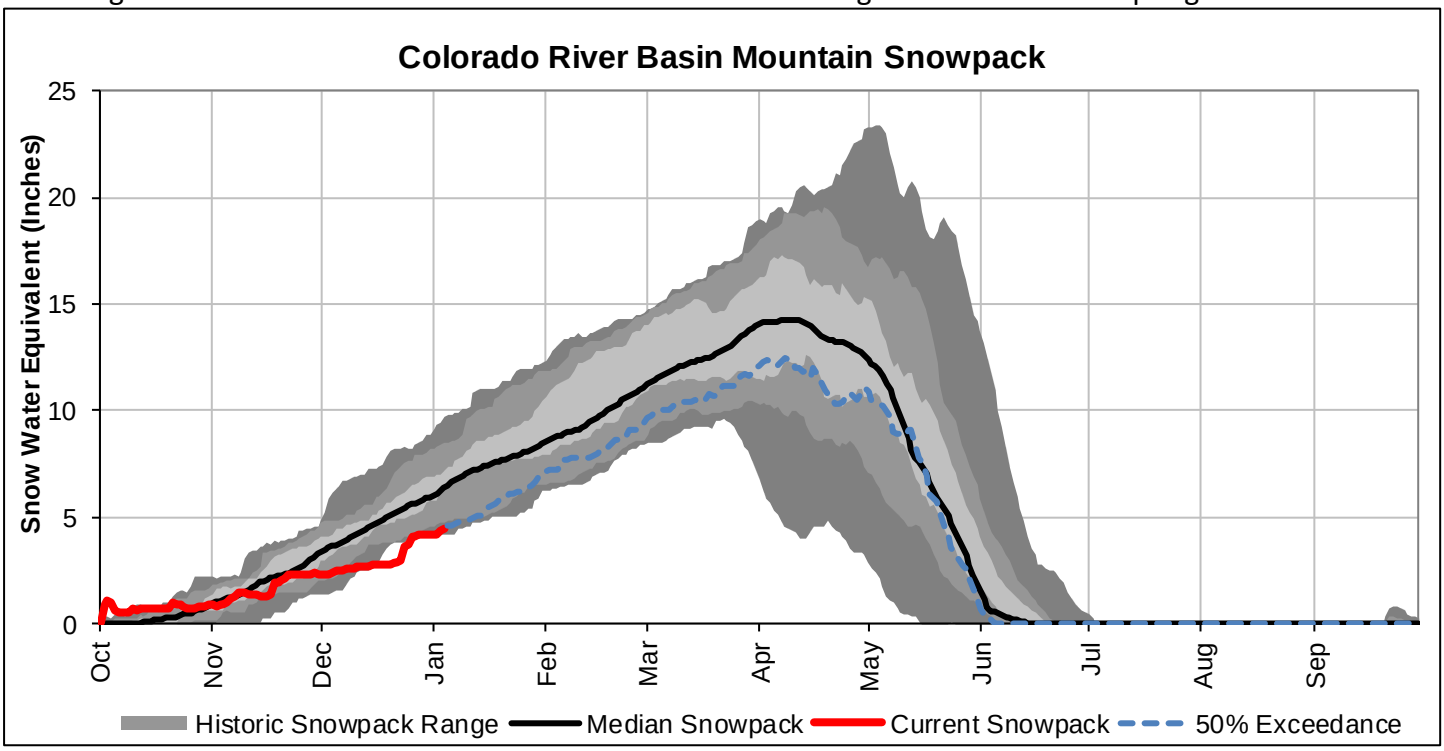


10% Exceedance Forecast (KAF) / 5% Exceedance	30% Exceedance Forecast (KAF)	50% Exceedance Forecast (KAF)	70% Exceedance Forecast (KAF)	90% Exceedance Forecast (KAF) / 95% Exceedance
	There is a 30% chance that flows will exceed this volume.	There is a 50% chance that flows will exceed this volume.	There is a 70% chance that flows will exceed this volume.	

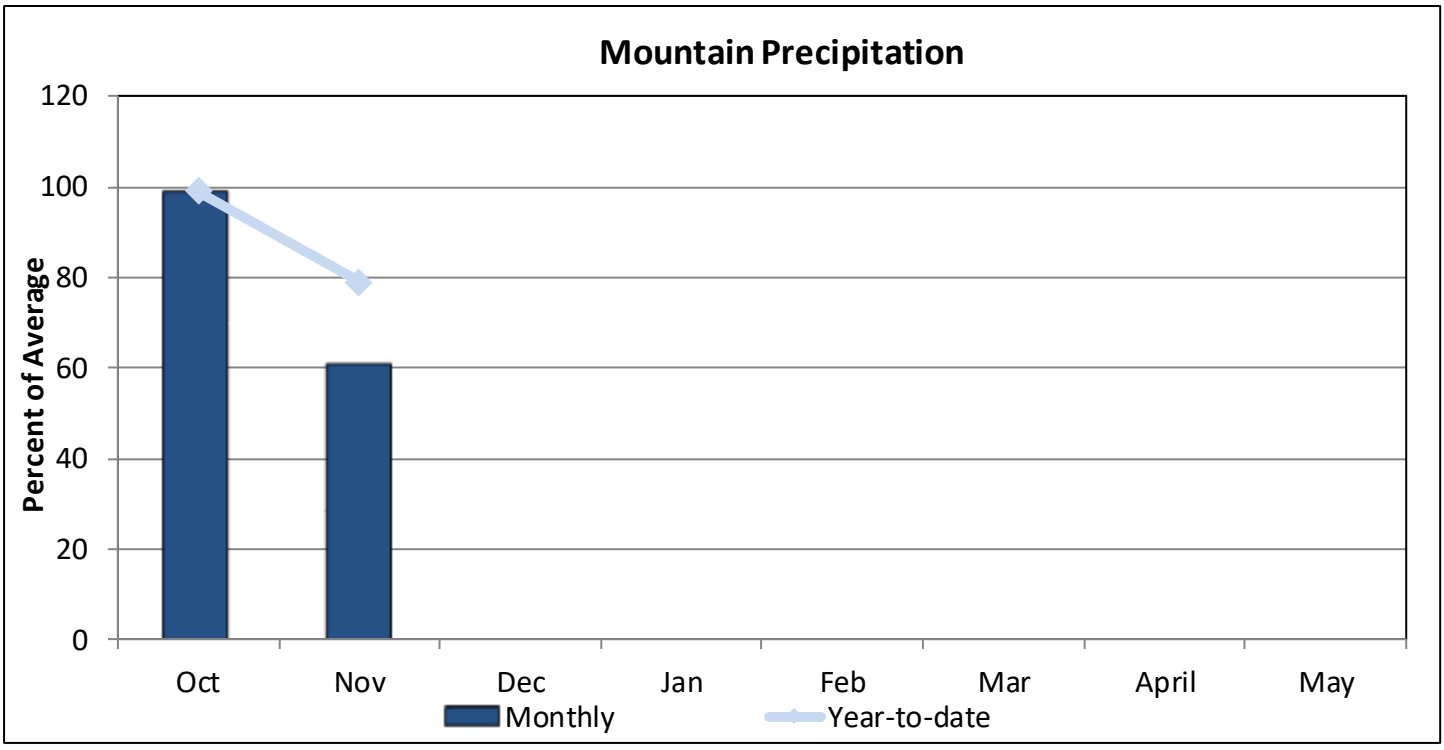
UPPER COLORADO RIVER BASIN

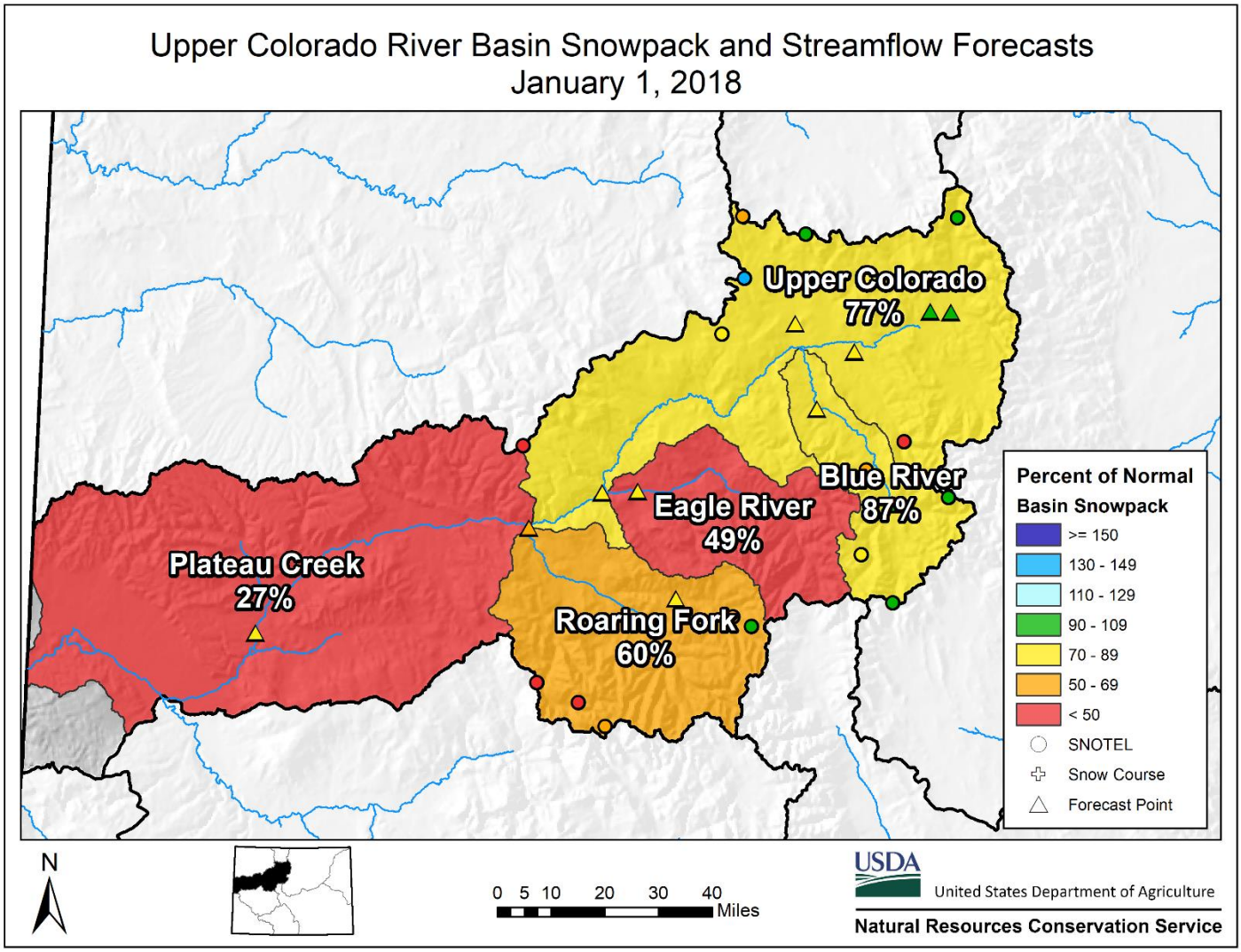
January 1, 2018

Snowpack in the Colorado River basin is below normal at 68% of the median. Precipitation for December was 66% of average which brings water year-to-date precipitation to 74% of average. Reservoir storage at the end of December was 113% of average compared to 106% last year. Current streamflow forecasts range from 92% of average for the inflow to Dillon Reservoir to 64% for the Roaring Fork at Glenwood Springs.



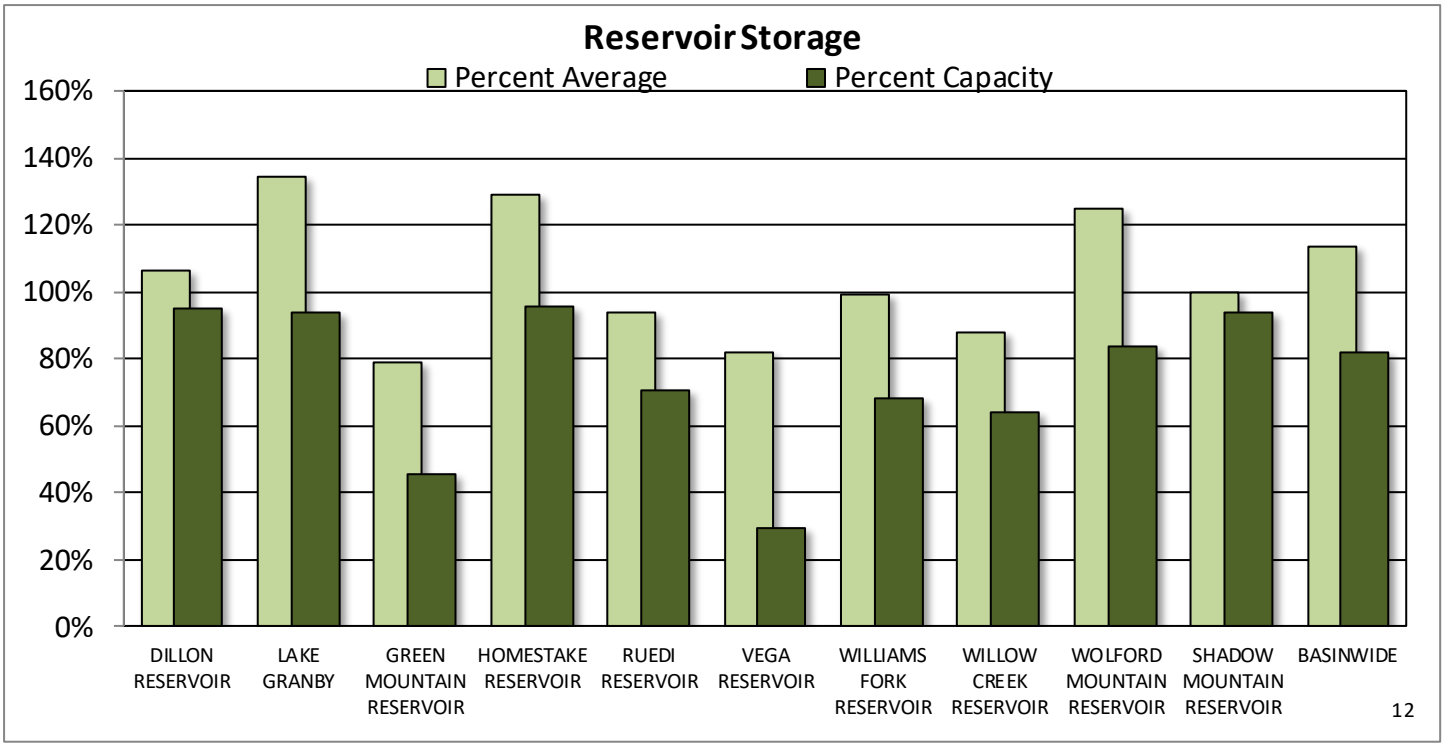
*SWE values calculated using daily SNOTEL data only





Watershed Snowpack Analysis January 1, 2018	# of Sites	% Median	Last Year % Median
BLUE RIVER BASIN	5	87%	110%
HEADWATERS COLORADO RIVER	19	77%	113%
MUDDY CREEK BASIN	3	89%	127%
EAGLE RIVER BASIN	4	49%	97%
PLATEAU CREEK BASIN	2	16%	125%
ROARING FORK BASIN	7	60%	126%
WILLIAMS FORK BASIN	3	64%	97%
WILLOW CREEK BASIN	2	119%	149%
Basin-Wide Total	**28**	**68%**	**116%**

*SWE values calculated using first of month SNOTEL data and snow course measurements



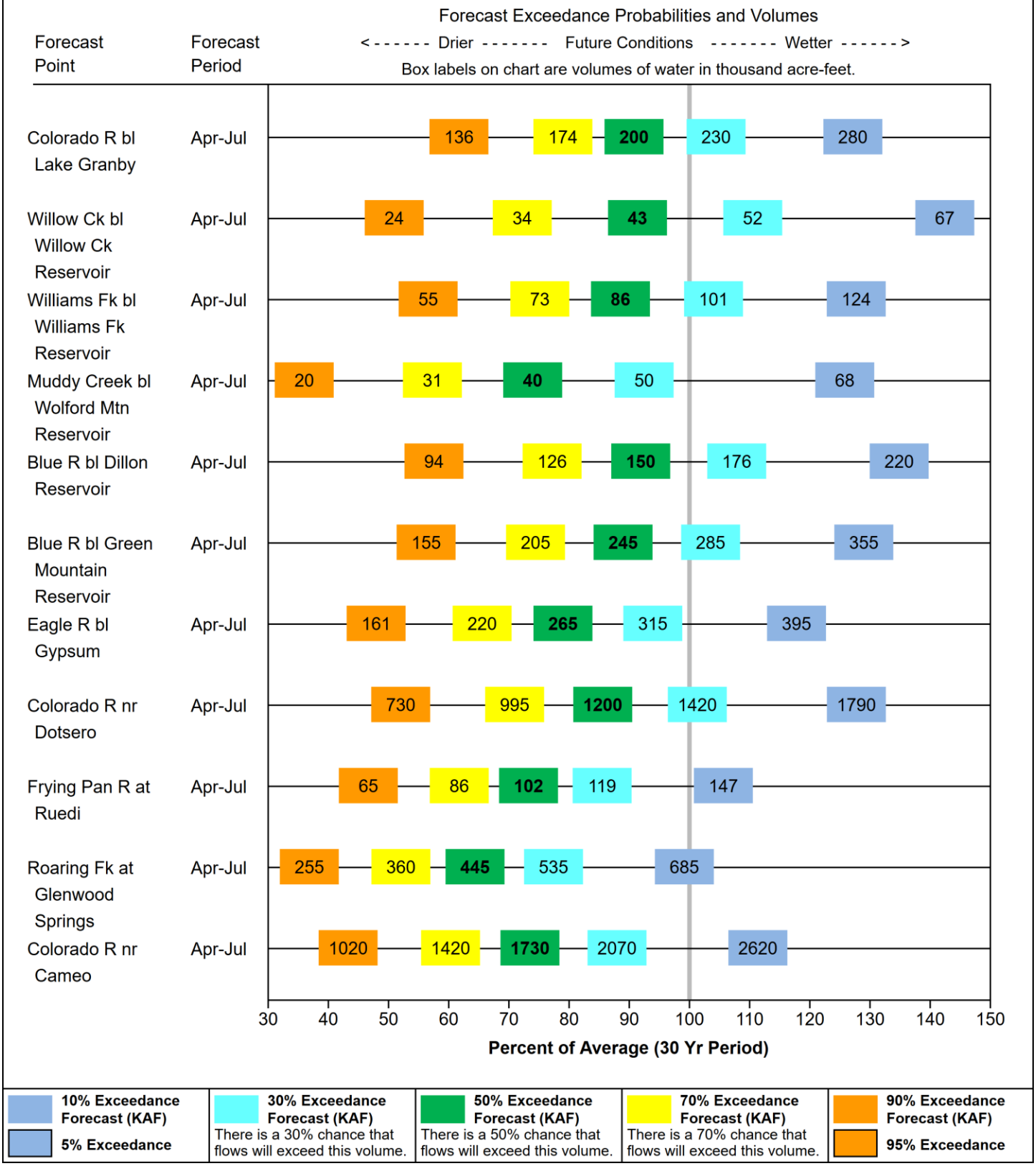
Reservoir Storage End of December 2017

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
DILLON RESERVOIR	236.3	219.0	222.1	249
LAKE GRANBY	437.4	350.0	325.7	466
GREEN MOUNTAIN RESERVOIR	67.1	60.4	85.2	147
HOMESTAKE RESERVOIR	41.1	42.1	31.9	43
RUEDI RESERVOIR	72.1	67.8	76.8	102
VEGA RESERVOIR	9.6	11.0	11.8	33
WILLIAMS FORK RESERVOIR	66.0	74.4	66.5	97
WILLOW CREEK RESERVOIR	5.8	6.7	6.6	9
WOLFORD MOUNTAIN RESERVOIR	55.0	50.8	44.0	66
SHADOW MOUNTAIN RESERVOIR	17.3	17.4	17.3	18
BASINWIDE	1007.7	899.5	887.9	1229.8
Number of Reservoirs	10	10	10	10

UPPER COLORADO RIVER BASIN

Water Supply Forecasts

January 1, 2018

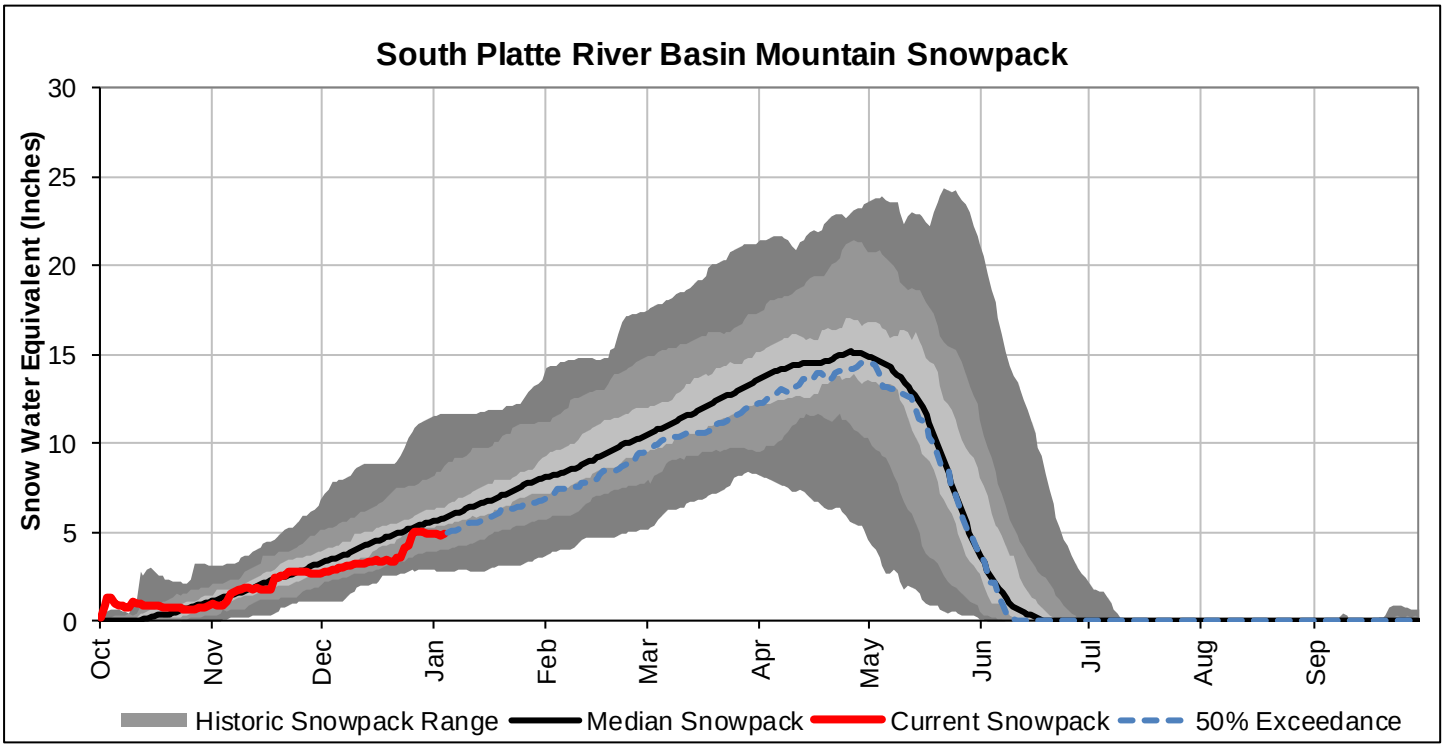


10% Exceedance Forecast (KAF)	30% Exceedance Forecast (KAF)	50% Exceedance Forecast (KAF)	70% Exceedance Forecast (KAF)	90% Exceedance Forecast (KAF)
5% Exceedance	There is a 30% chance that flows will exceed this volume.	There is a 50% chance that flows will exceed this volume.	There is a 70% chance that flows will exceed this volume.	95% Exceedance

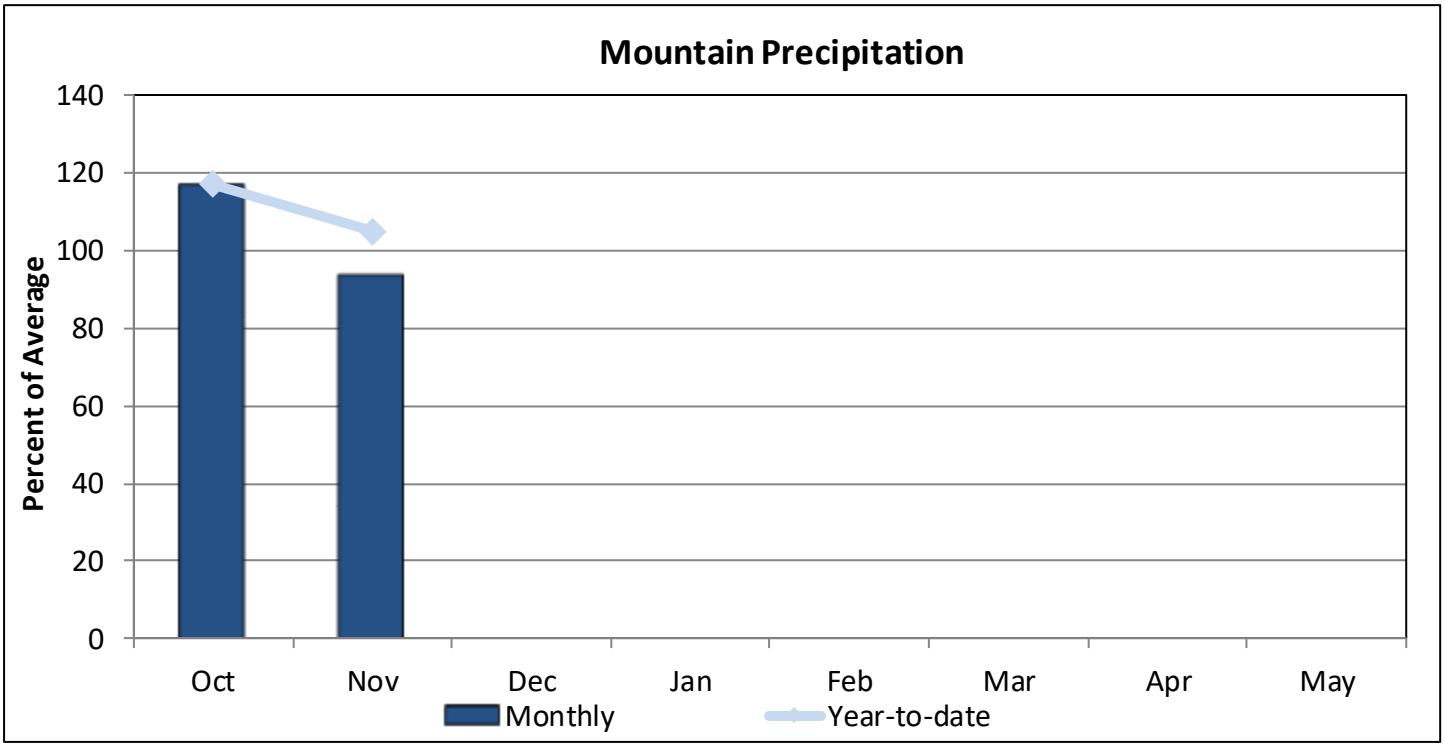
SOUTH PLATTE RIVER BASIN

January 1, 2018

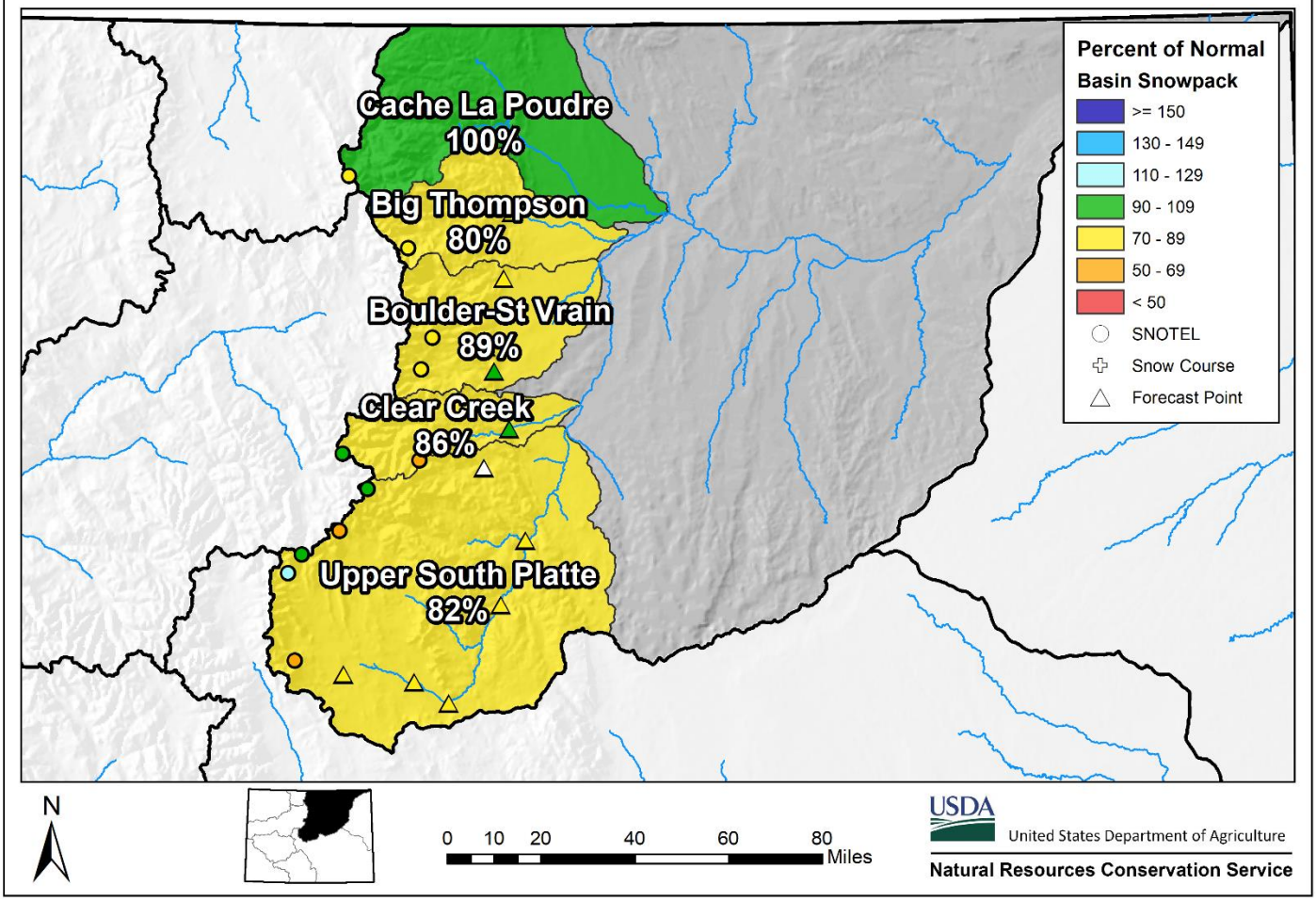
Snowpack in the South Platte River basin is below normal at 87% of the median. Precipitation for December was 97% of average which brings water year-to-date precipitation to 102%. Reservoir storage at the end of December was 114% of average compared to 106% last year. Streamflow forecasts range from 94% of average for Boulder Creek near Orodell to 73% for the South Platte River at South Platte.



*SWE values calculated using daily SNOTEL data only

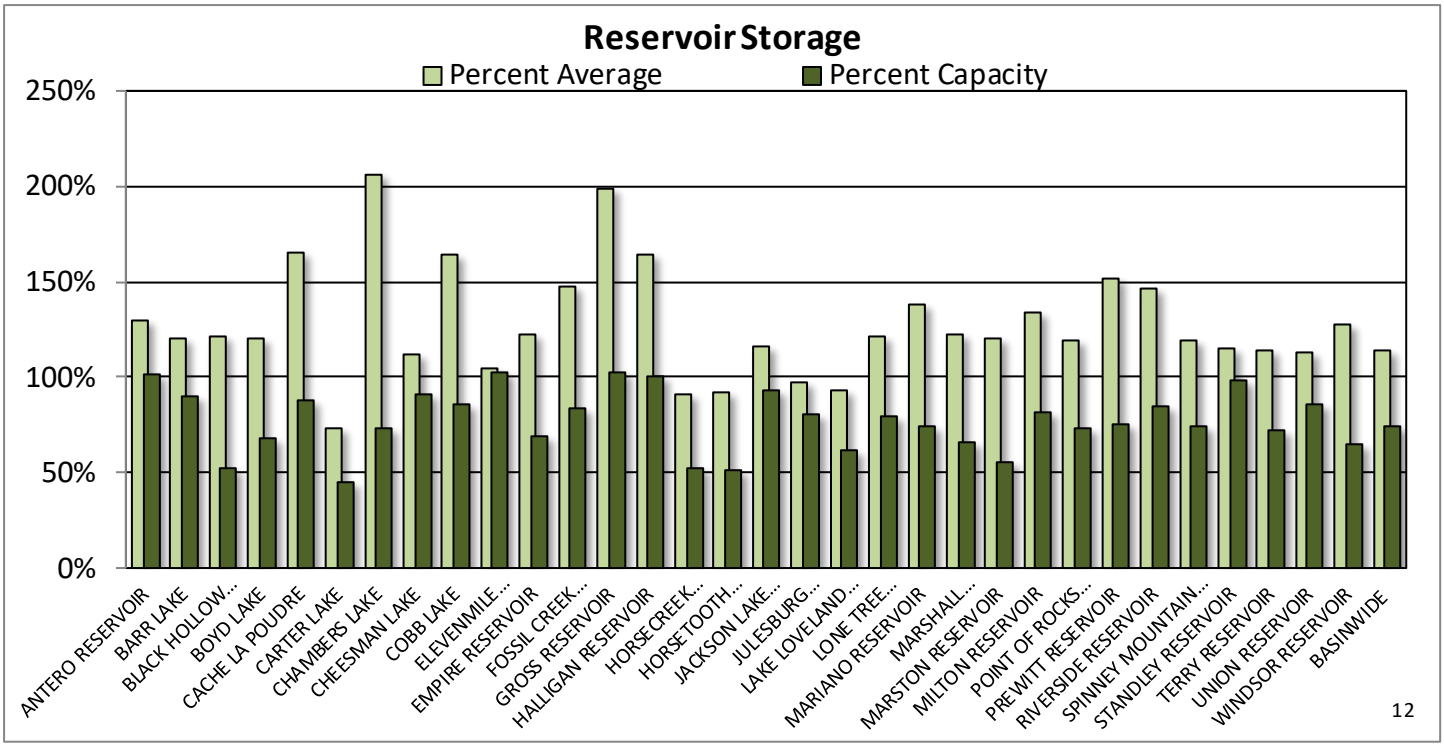


South Platte River Basin Snowpack and Streamflow Forecasts
January 1, 2018



Watershed Snowpack Analysis January 1, 2018	# of Sites	% Median	Last Year % Median
BIG THOMPSON BASIN	3	80%	114%
BOULDER CREEK BASIN	3	92%	122%
CACHE LA POUDRE BASIN	2	100%	95%
CLEAR CREEK BASIN	2	86%	105%
SAINT VRAIN BASIN	1	67%	152%
UPPER SOUTH PLATTE BASIN	6	82%	89%
Basin-Wide Total	**17**	**87%**	**105%**

*SWE values calculated using first of month SNOTEL data and snow course measurements



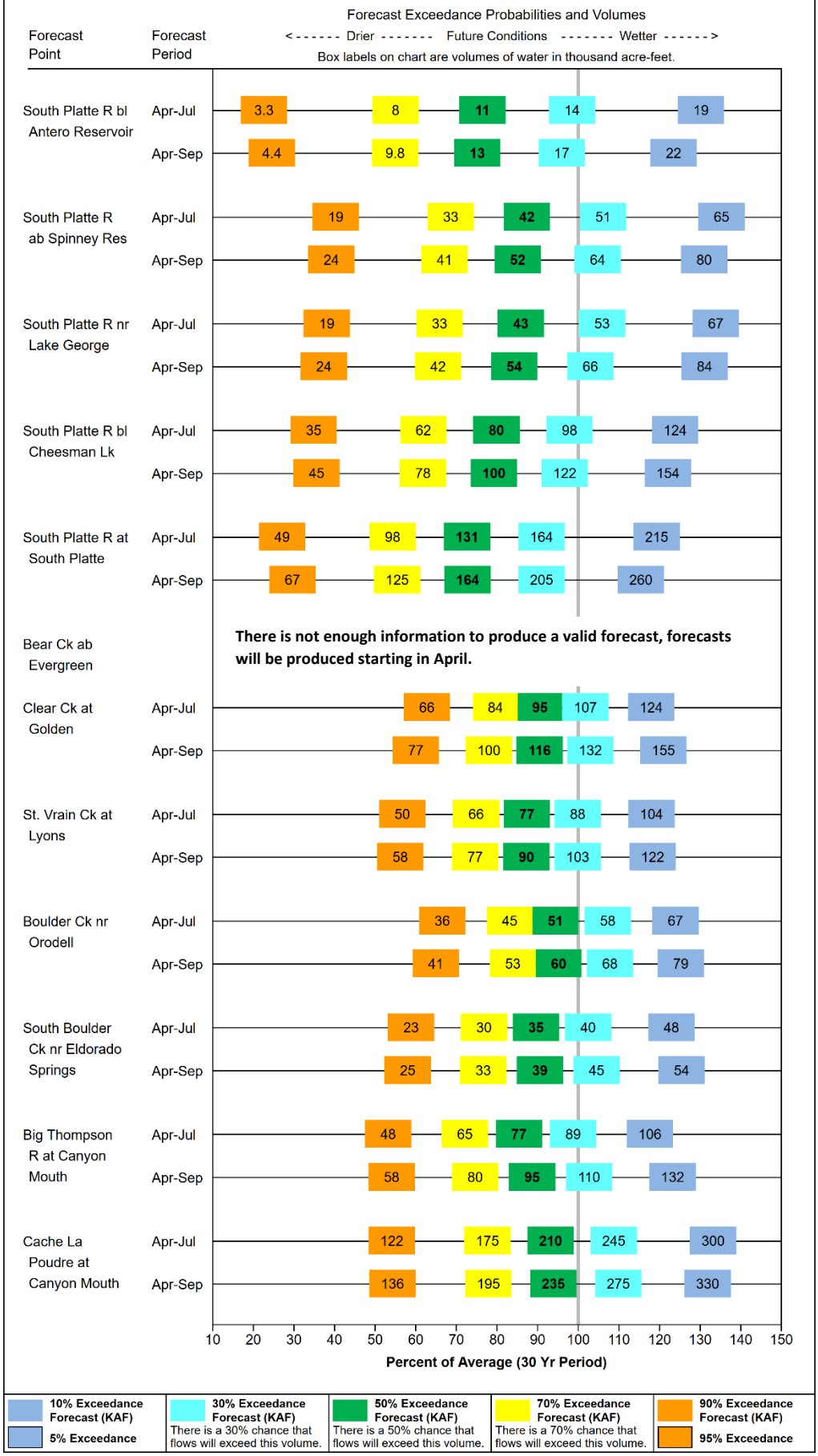
Reservoir Storage End of December 2017

Reservoir	(KAF)	(KAF)	(KAF)	(KAF)
ANTERO RESERVOIR	20.1	14.5	15.5	20
BARR LAKE	26.9	24.0	22.3	30
BLACK HOLLOW RESERVOIR	3.4	3.3	2.8	7
BOYD LAKE	33.0	27.6	27.4	48
CACHE LA POUDRE	8.9	6.8	5.4	10
CARTER LAKE	49.3	71.5	67.5	109
CHAMBERS LAKE	6.4	2.6	3.1	9
CHEESMAN LAKE	72.2	68.5	64.3	79
COBB LAKE	19.2	17.0	11.7	22
ELEVENMILE CANYON RESERVOIR	100.0	99.4	95.9	98
EMPIRE RESERVOIR	25.1	23.7	20.6	37
FOSSIL CREEK RESERVOIR	9.3	9.3	6.3	11
GROSS RESERVOIR	30.6	12.1	15.4	30
HALLIGAN RESERVOIR	6.4	6.4	3.9	6
HORSECREEK RESERVOIR	7.7	7.5	8.5	15
HORSETOOTH RESERVOIR	76.5	114.5	83.5	150
JACKSON LAKE RESERVOIR	24.2	24.0	20.9	26
JULESBURG RESERVOIR	16.5	12.7	17.0	21
LAKE LOVELAND RESERVOIR	6.3	3.9	6.8	10
LONE TREE RESERVOIR	6.9	5.2	5.7	9
MARIANO RESERVOIR	4.0	1.0	2.9	5
MARSHALL RESERVOIR	6.6	5.9	5.4	10
MARSTON RESERVOIR	7.2	5.1	6.0	13
MILTON RESERVOIR	19.1	19.4	14.3	24
POINT OF ROCKS RESERVOIR	51.7	50.9	43.3	71
PREWITT RESERVOIR	21.1	20.1	13.9	28
RIVERSIDE RESERVOIR	47.0	45.1	32.1	56
SPINNEY MOUNTAIN RESERVOIR	36.3	27.6	30.5	49
STANDLEY RESERVOIR	41.2	32.1	35.8	42
TERRY RESERVOIR	5.8	4.8	5.1	8
UNION RESERVOIR	11.1	9.3	9.8	13
WINDSOR RESERVOIR	9.8	11.2	7.7	15
BASINWIDE	809.7	787.0	711.3	1079.5
Number of Reservoirs	32	32	32	32

SOUTH PLATTE RIVER BASIN

Water Supply Forecasts

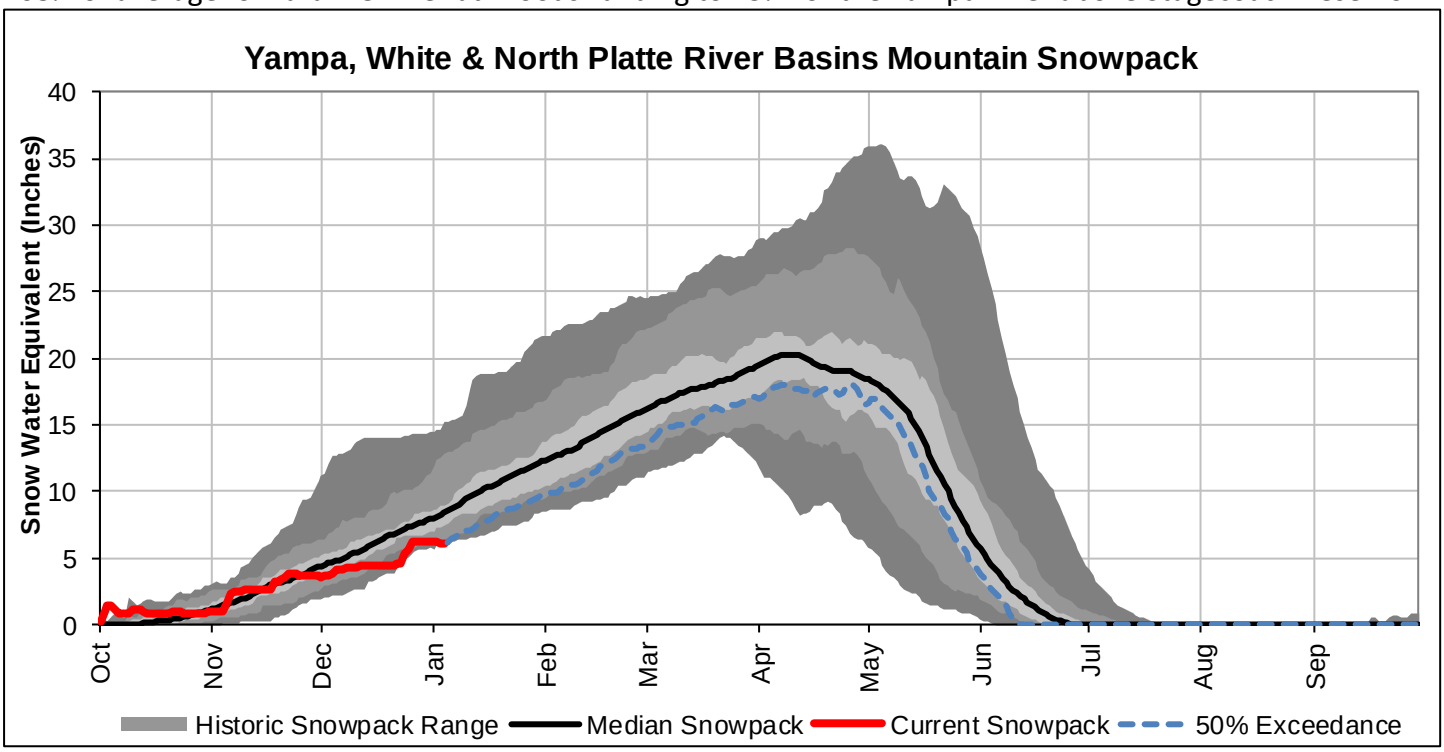
January 1, 2018



YAMPA, WHITE, NORTH PLATTE, AND LARAMIE RIVER BASINS

January 1, 2018

Snowpack in the Yampa, White & North Platte basins is below normal at 87% of the median. Precipitation for December was 63% of average and water year-to-date precipitation is 76% of average. Reservoir storage at the end of December was 117% of average compared to 118% last year. Streamflow forecasts range from 108% of average for Laramie River at Woods Landing to 45% for the Yampa River above Stagecoach Reservoir.



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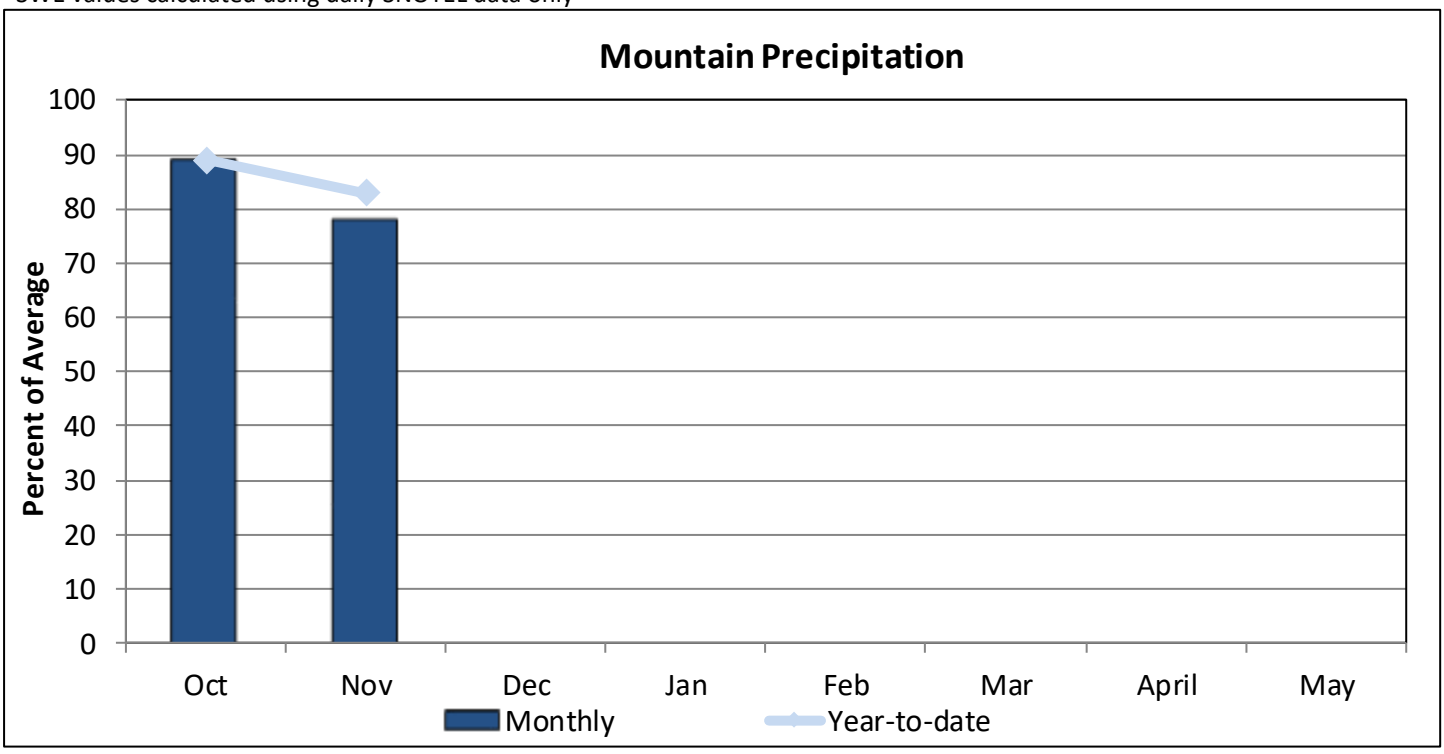
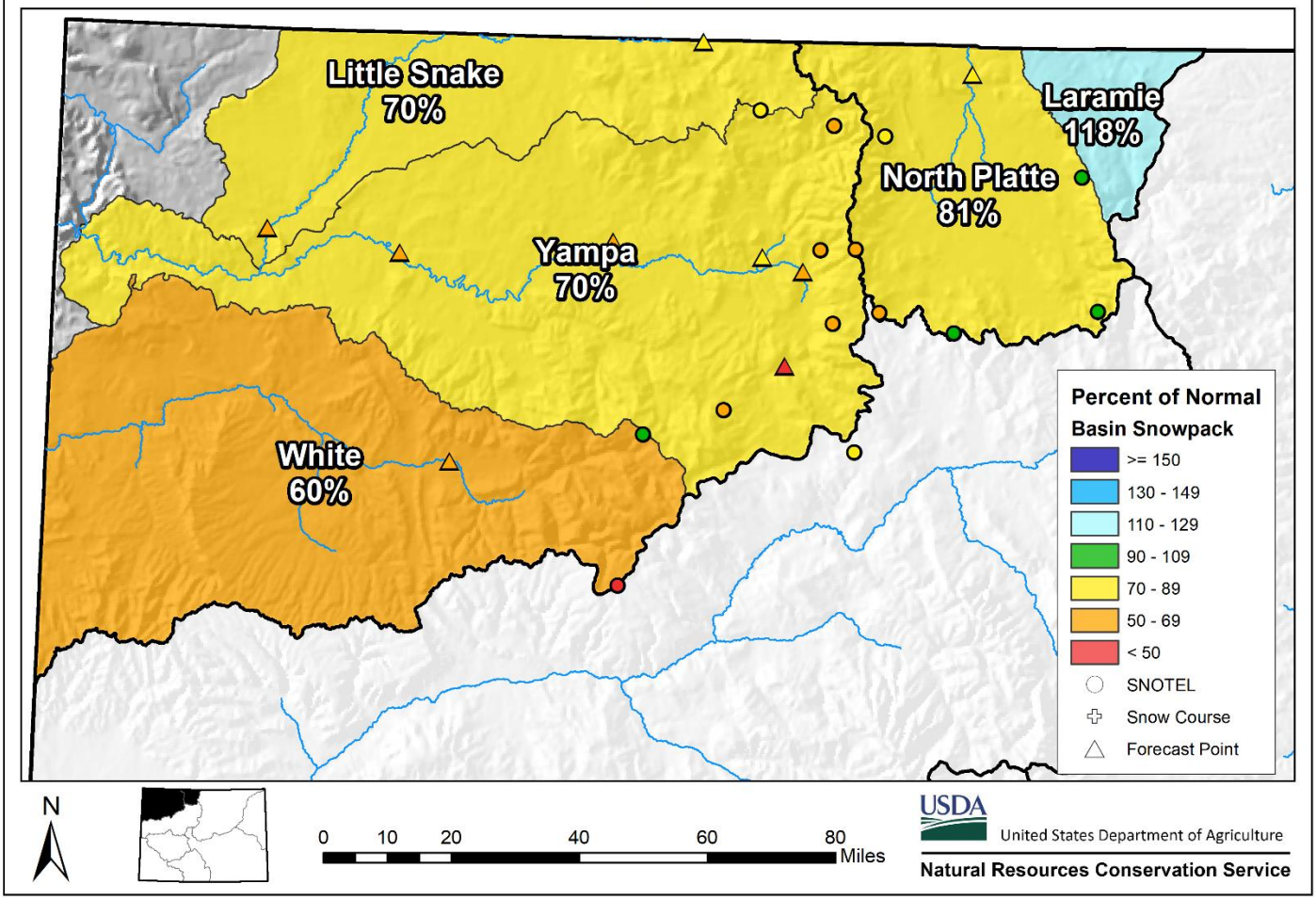
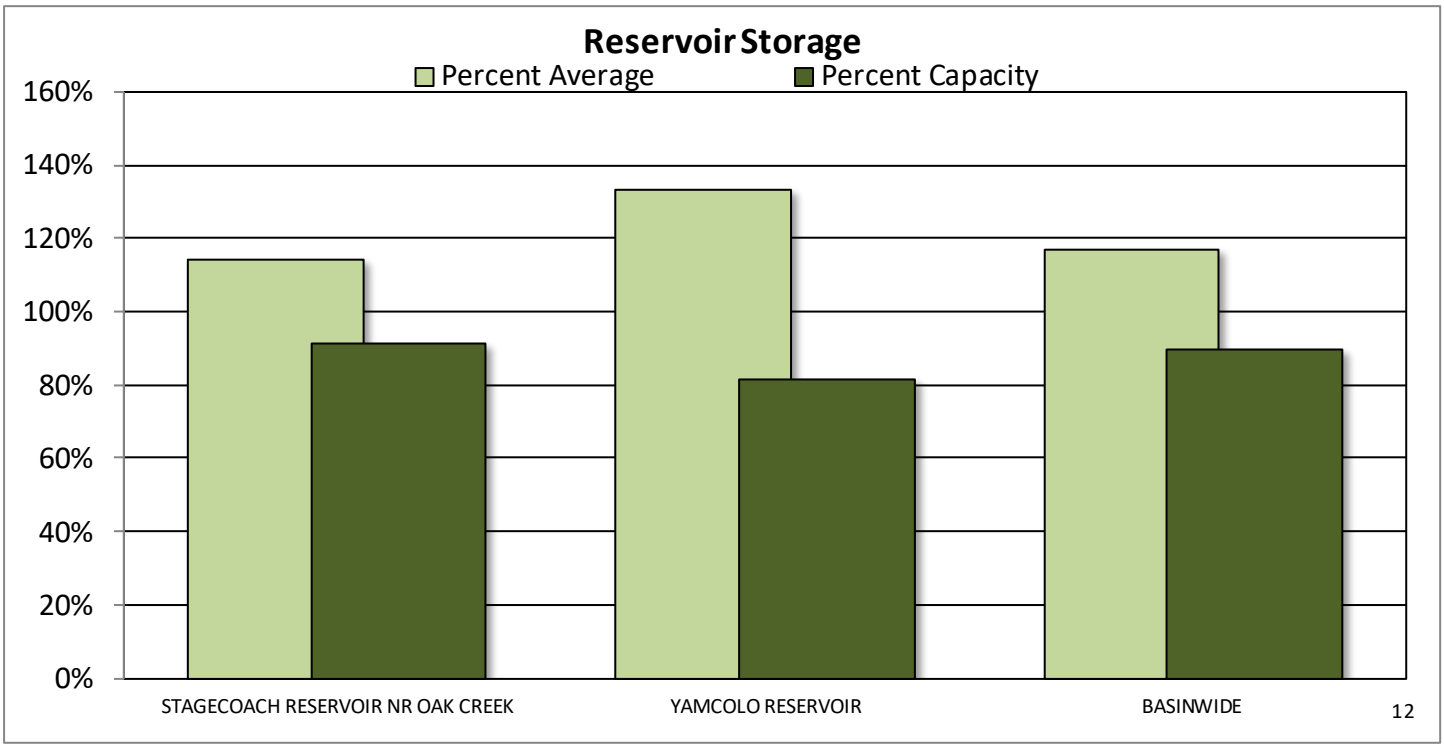


Yampa, White, and North Platte River Basins Snowpack and Streamflow Forecasts
January 1, 2018



Watershed Snowpack Analysis January 1, 2018	# of Sites	% Median	Last Year % Median
LARAMIE RIVER BASIN	2	118%	99%
NORTH PLATTE RIVER BASIN	8	81%	108%
LARAMIE & NORTH PLATTE RIVER BASINS	10	87%	107%
ELK RIVER BASIN	2	68%	110%
YAMPA RIVER BASIN	9	70%	105%
WHITE RIVER BASIN	3	60%	112%
YAMPA & WHITE RIVER BASINS	11	65%	105%
LITTLE SNAKE RIVER BASIN	7	70%	104%
Basin-Wide Total	**25**	**76%**	**107%**

*SWE values calculated using first of month SNOTEL data and snow course measurements



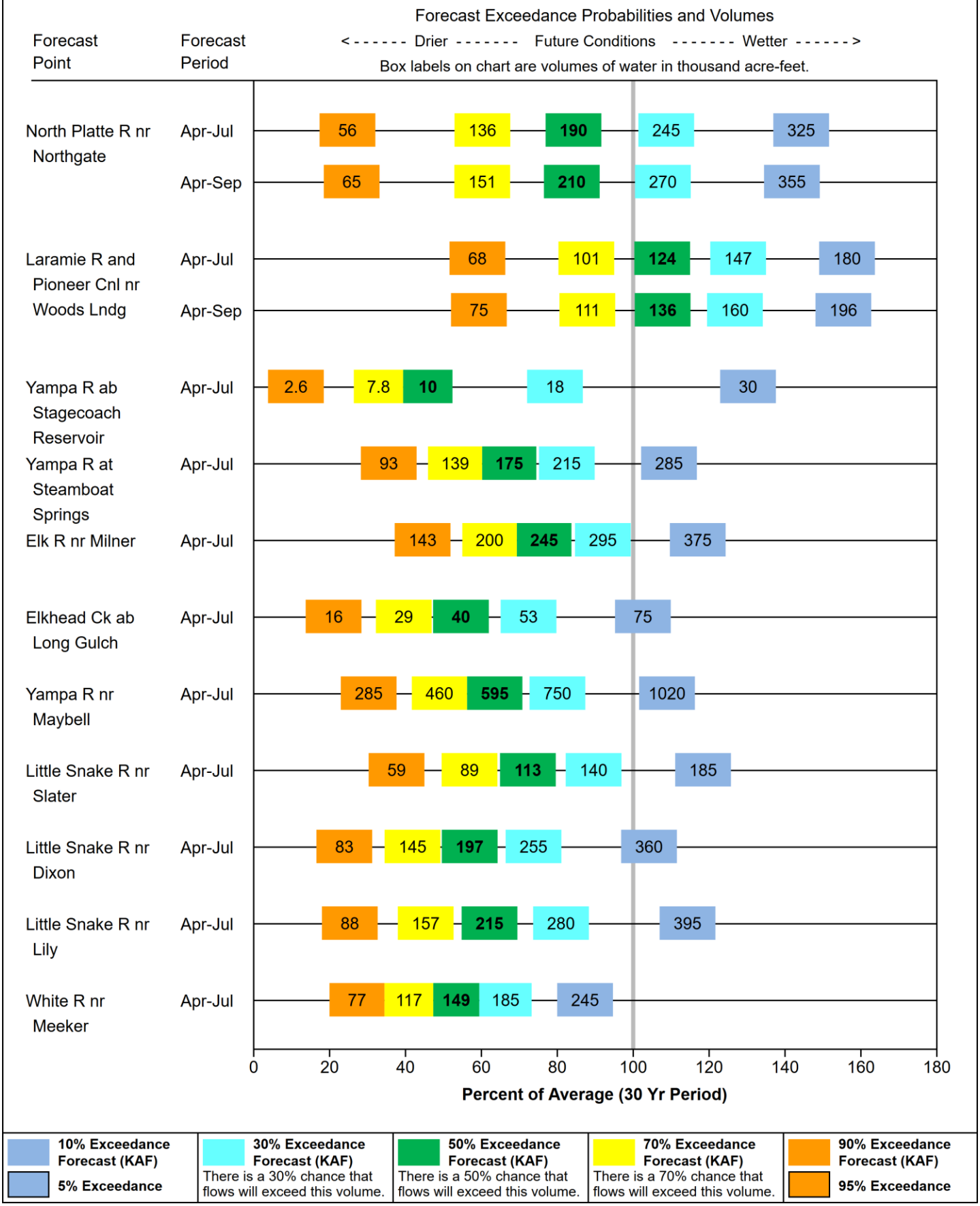
Reservoir Storage End of December 2017

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
STAGECOACH RESERVOIR NR OAK C	33.4	34.5	29.3	37
YAMCOLO RESERVOIR	7.1	6.7	5.3	9
BASINWIDE	40.5	41.2	34.6	45.2
Number of Reservoirs	2	2	2	2

YAMPA-WHITE-NORTH PLATTE RIVER BASINS

Water Supply Forecasts

January 1, 2018

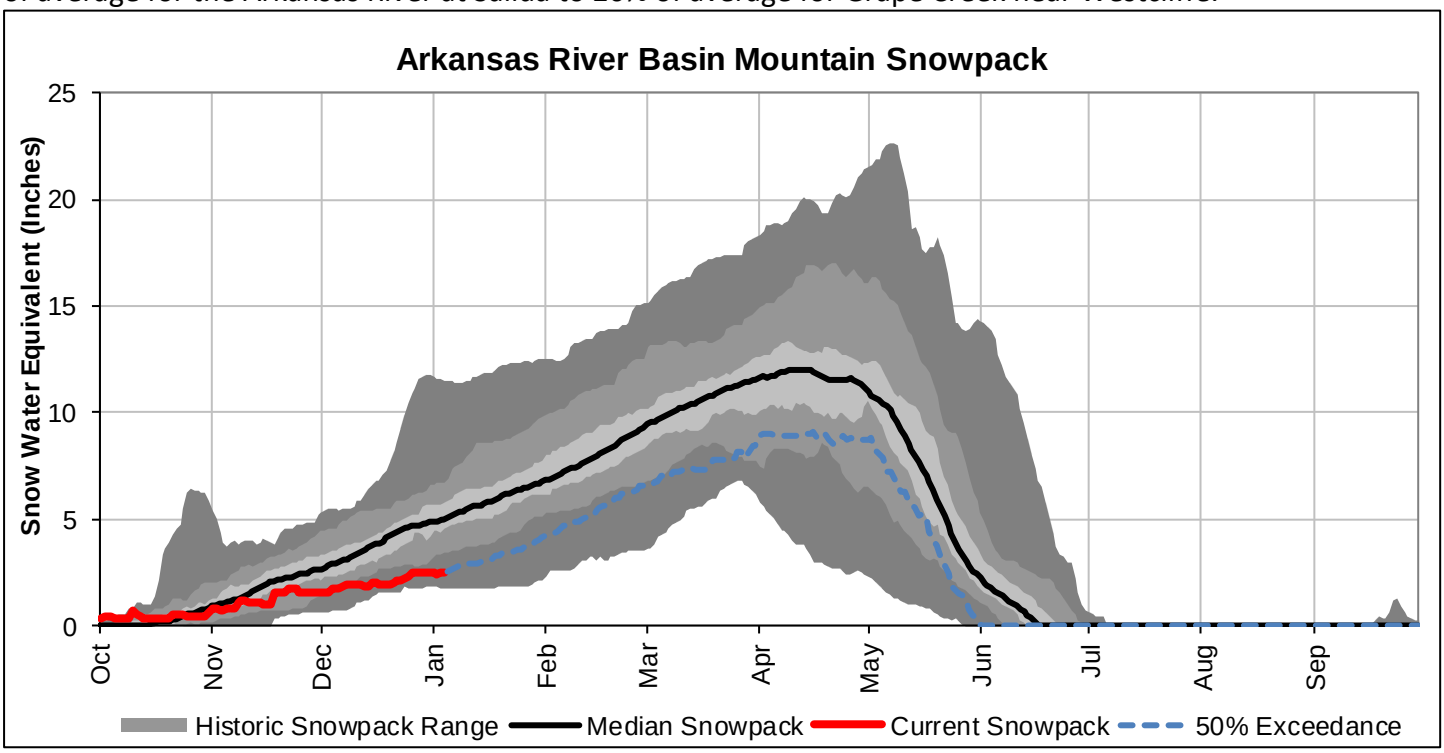


10% Exceedance Forecast (KAF) / 5% Exceedance	30% Exceedance Forecast (KAF)	50% Exceedance Forecast (KAF)	70% Exceedance Forecast (KAF)	90% Exceedance Forecast (KAF) / 95% Exceedance
	There is a 30% chance that flows will exceed this volume.	There is a 50% chance that flows will exceed this volume.	There is a 70% chance that flows will exceed this volume.	

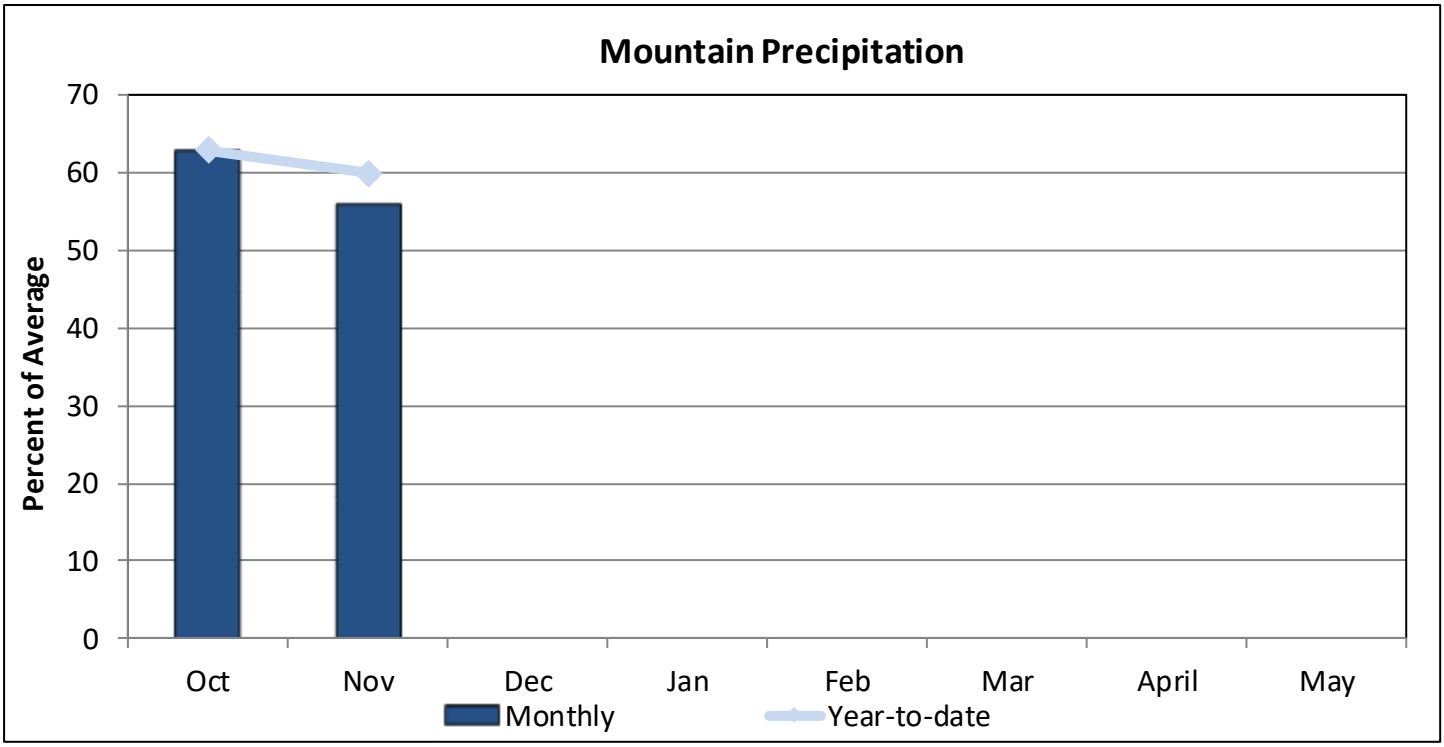
ARKANSAS RIVER BASIN

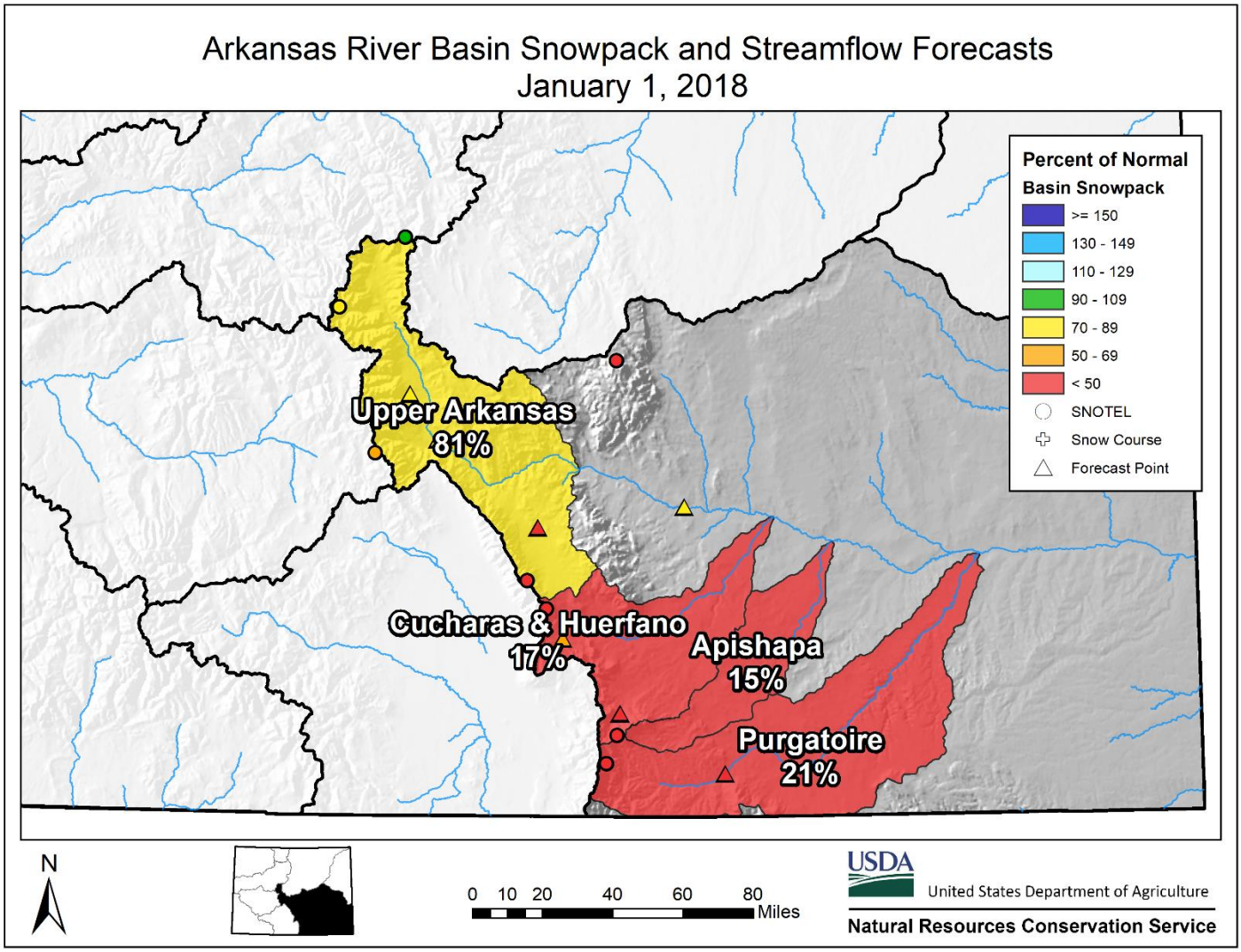
January 1, 2018

Snowpack in the Arkansas River basin is below normal at 48% of the median. Precipitation for December was 48% of average which brings water year-to-date precipitation to 56% of average. Reservoir storage at the end of December was 143% of average compared to 101% last year. Current streamflow forecasts range from 83% of average for the Arkansas River at Salida to 26% of average for Grape Creek near Westcliffe.



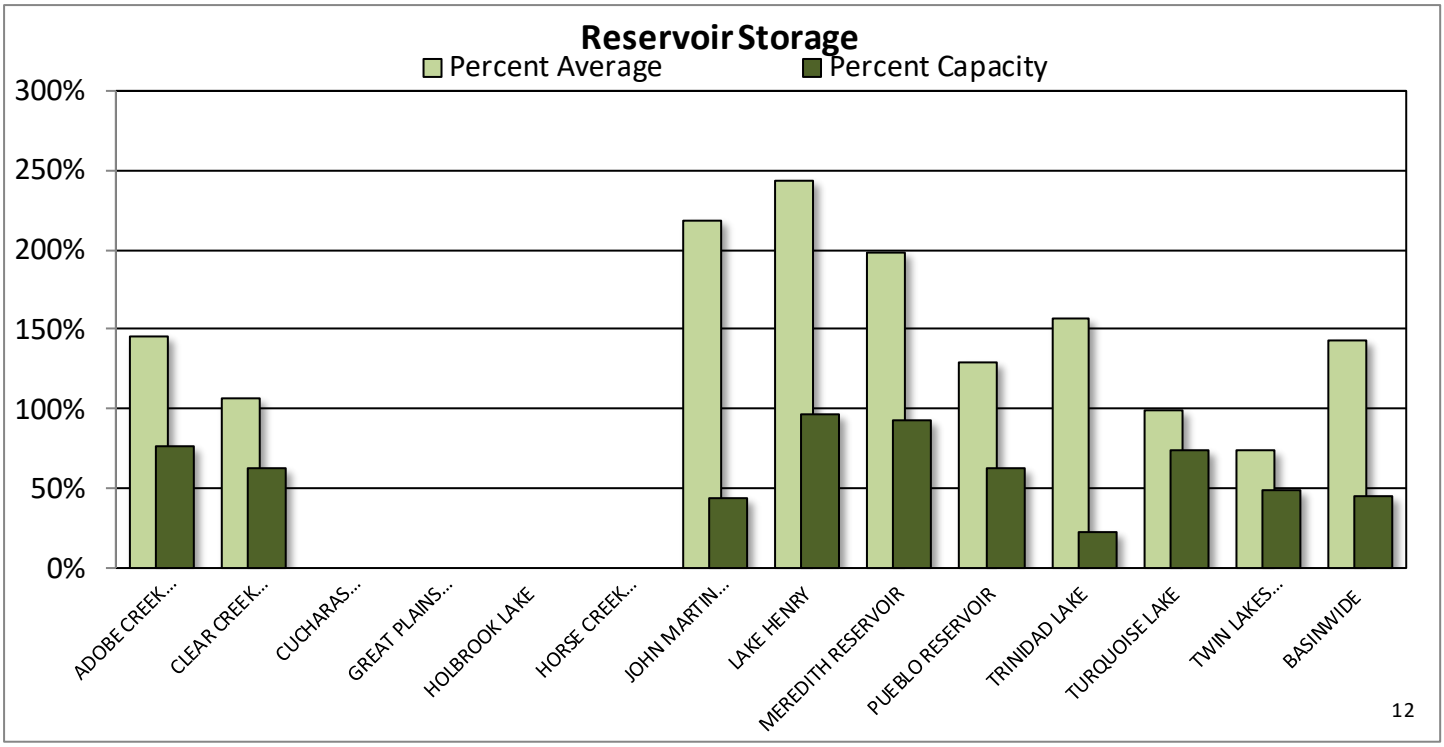
*SWE values calculated using daily SNOTEL data only





Watershed Snowpack Analysis January 1, 2018	# of Sites	% Median	Last Year % Median
UPPER ARKANSAS BASIN	3	81%	114%
CUCHARAS & HUERFANO BASINS	3	17%	110%
PURGATOIRE RIVER BASIN	2	21%	176%
Basin-Wide Total	**8**	**48%**	**116%**

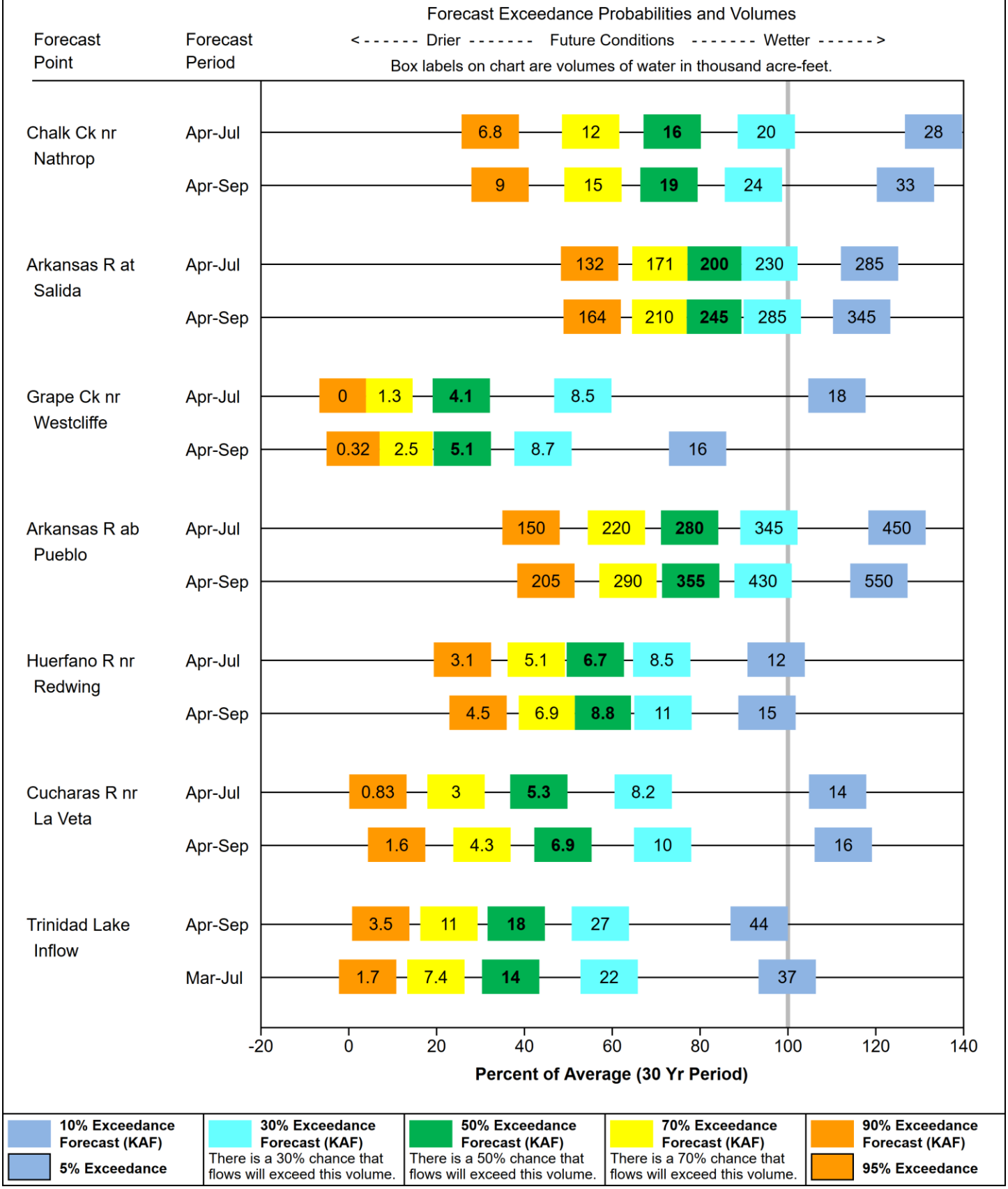
*SWE values calculated using first of month SNOTEL data and snow course measurements



Reservoir Storage End of December 2017

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
ADOBE CREEK RESERVOIR	47.7	58.0	32.7	62
CLEAR CREEK RESERVOIR	7.1	7.6	6.7	11
CUCHARAS RESERVOIR				40
GREAT PLAINS RESERVOIR		0.0		150
HOLBROOK LAKE	0.0		2.5	7
HORSE CREEK RESERVOIR				27
JOHN MARTIN RESERVOIR	268.9	120.1	122.8	616
LAKE HENRY	9.0	6.9	3.7	9
MEREDITH RESERVOIR	39.1	33.8	19.7	42
PUEBLO RESERVOIR	220.6	226.9	170.8	354
TRINIDAD LAKE	38.3	24.4	24.4	167
TURQUOISE LAKE	93.4	66.3	94.1	127
TWIN LAKES RESERVOIR	42.2	45.1	57.0	86
BASINWIDE	766.3	589.0	534.4	1698.8
Number of Reservoirs	10	10	10	13

ARKANSAS RIVER BASIN
Water Supply Forecasts
January 1, 2018

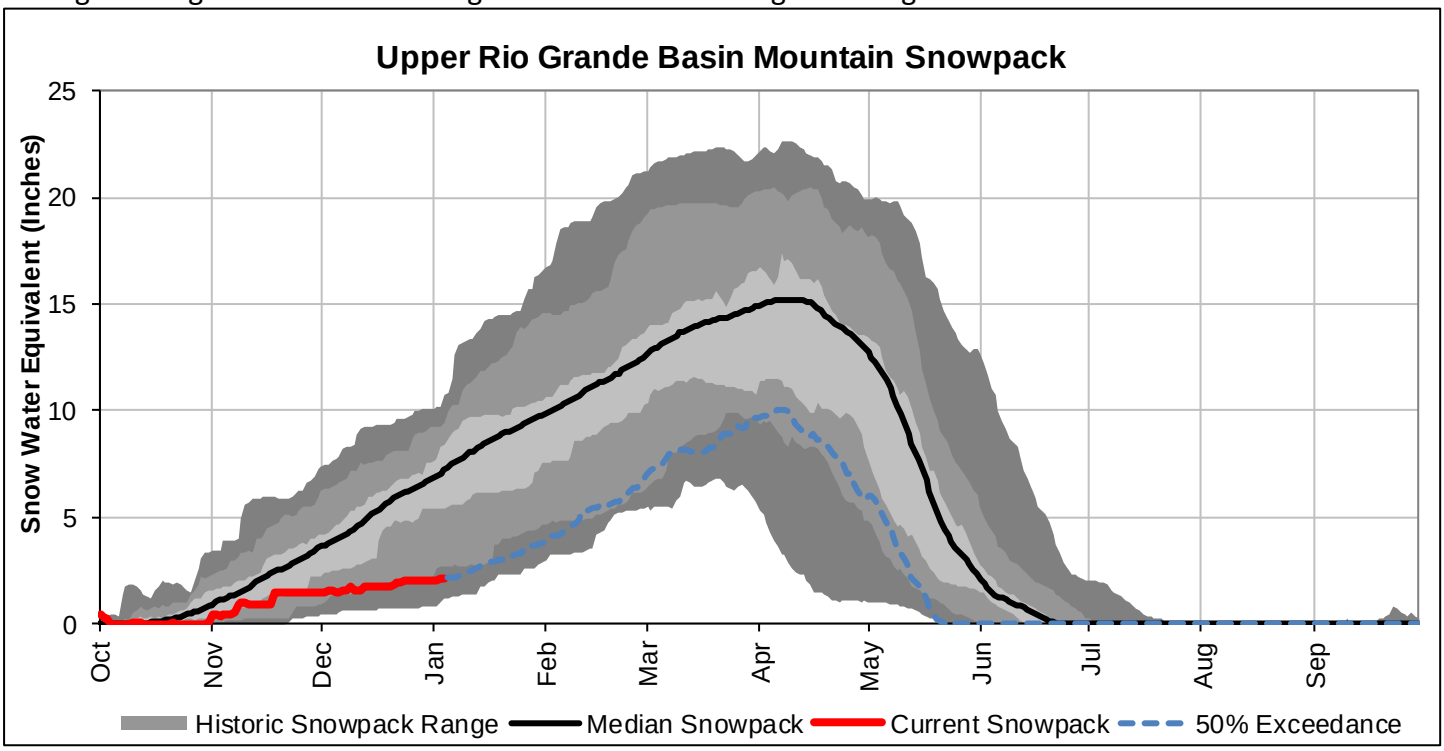


10% Exceedance Forecast (KAF) / 5% Exceedance	30% Exceedance Forecast (KAF)	50% Exceedance Forecast (KAF)	70% Exceedance Forecast (KAF)	90% Exceedance Forecast (KAF) / 95% Exceedance
	There is a 30% chance that flows will exceed this volume.	There is a 50% chance that flows will exceed this volume.	There is a 70% chance that flows will exceed this volume.	

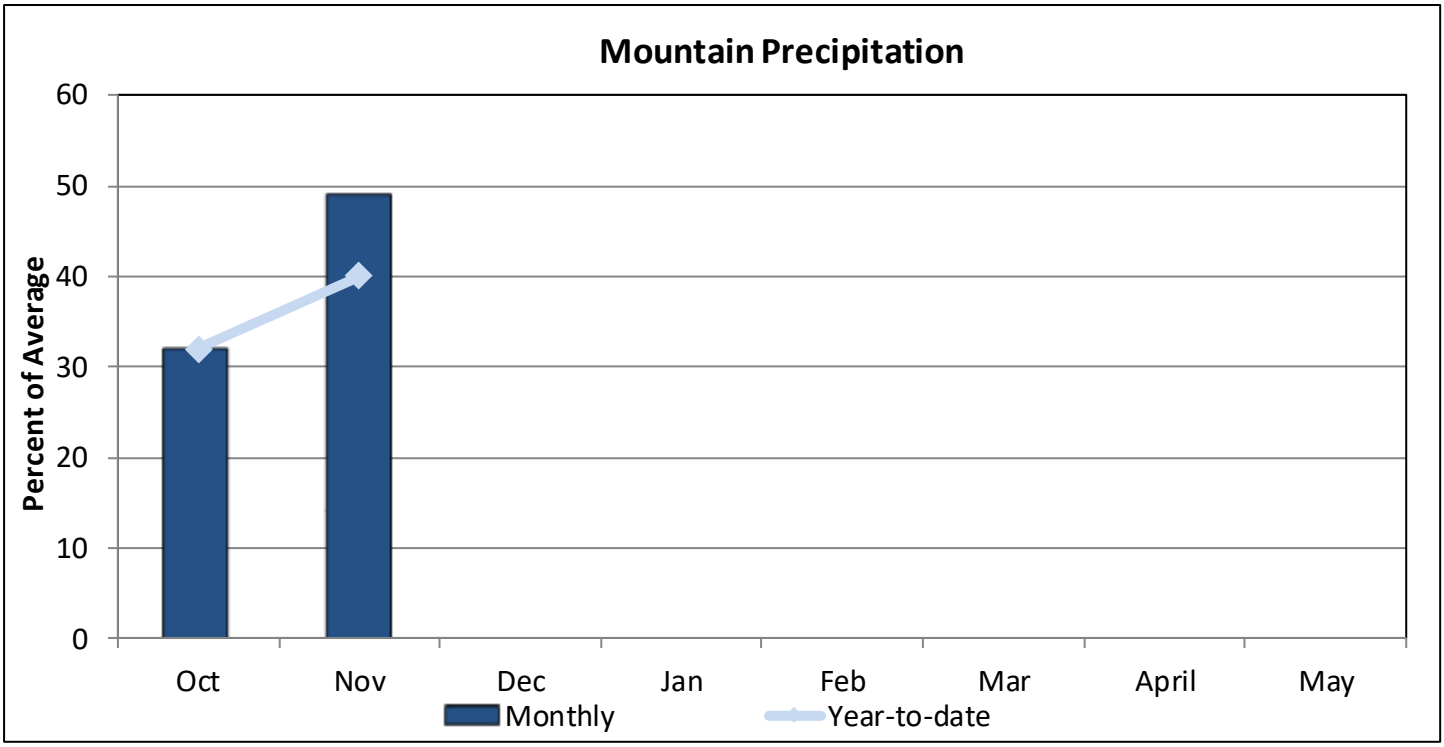
UPPER RIO GRANDE RIVER BASIN

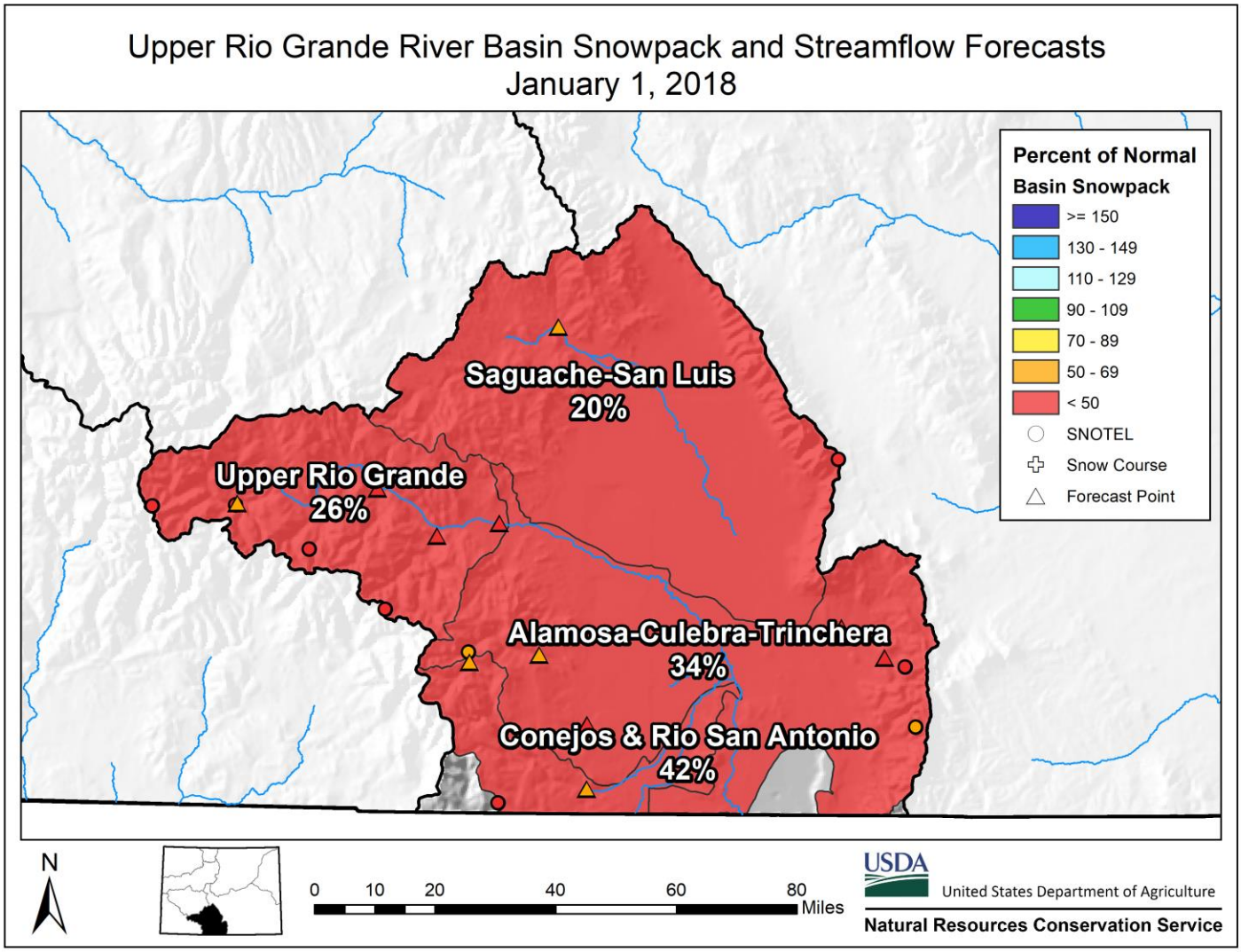
January 1, 2018

Snowpack in the Upper Rio Grande River basin is below normal at 29% of median. Precipitation for December was 23% of average which brings water year-to-date precipitation to 34% of average. Reservoir storage at the end of December was 123% of average compared to 86% last year. Streamflow forecasts range from 63% of average for Saguache Creek near Saguache to 24% of average for Sangre de Cristo Creek.



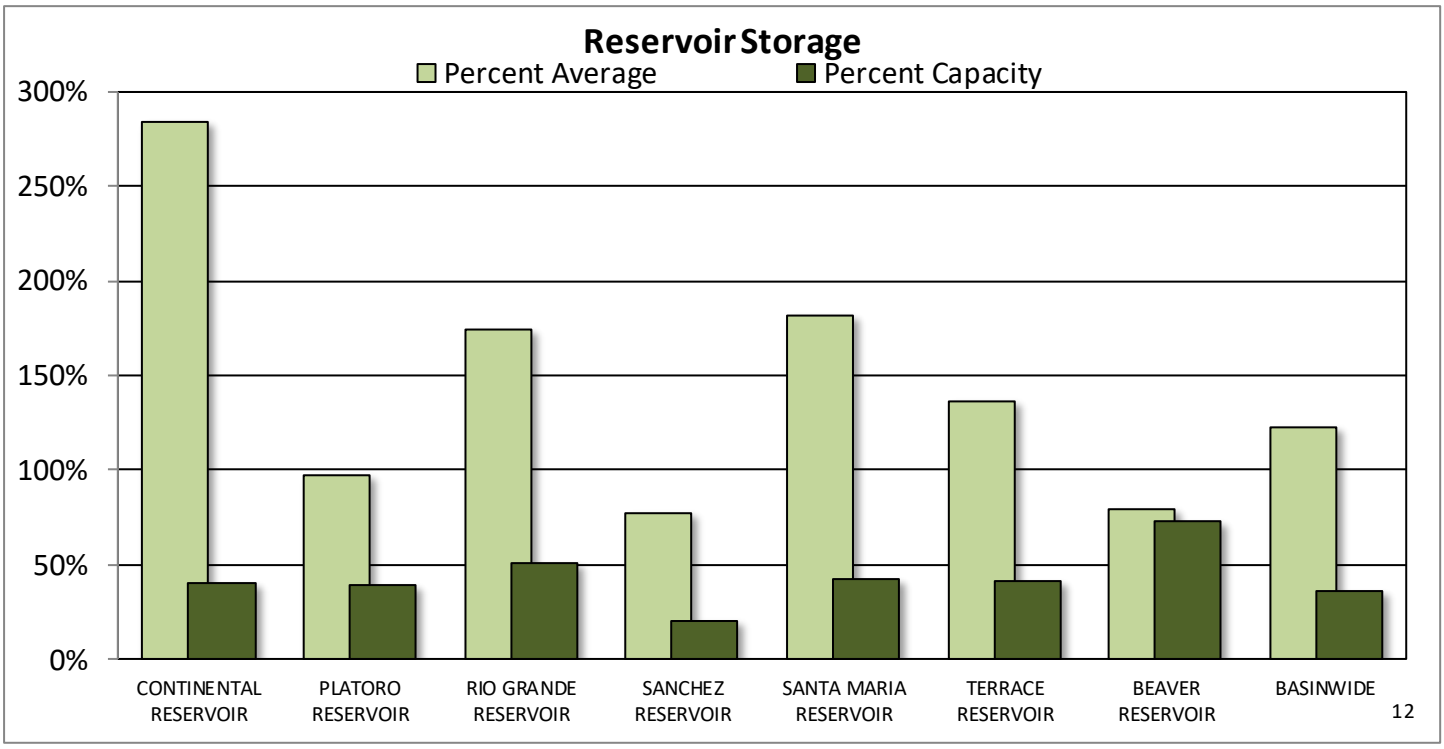
*SWE values calculated using daily SNOTEL data only





Watershed Snowpack Analysis January 1, 2018	# of Sites	% Median	Last Year % Median
ALAMOSA CREEK BASIN	1	52%	95%
CONEJOS & RIO SAN ANTONIO BASINS	2	42%	132%
CULEBRA & TRINCHERA BASINS	3	26%	131%
HEADWATERS RIO GRANDE RIVER BASIN	6	26%	85%
Basin-Wide Total	**12**	**29%**	**105%**

*SWE values calculated using first of month SNOTEL data and snow course measurements



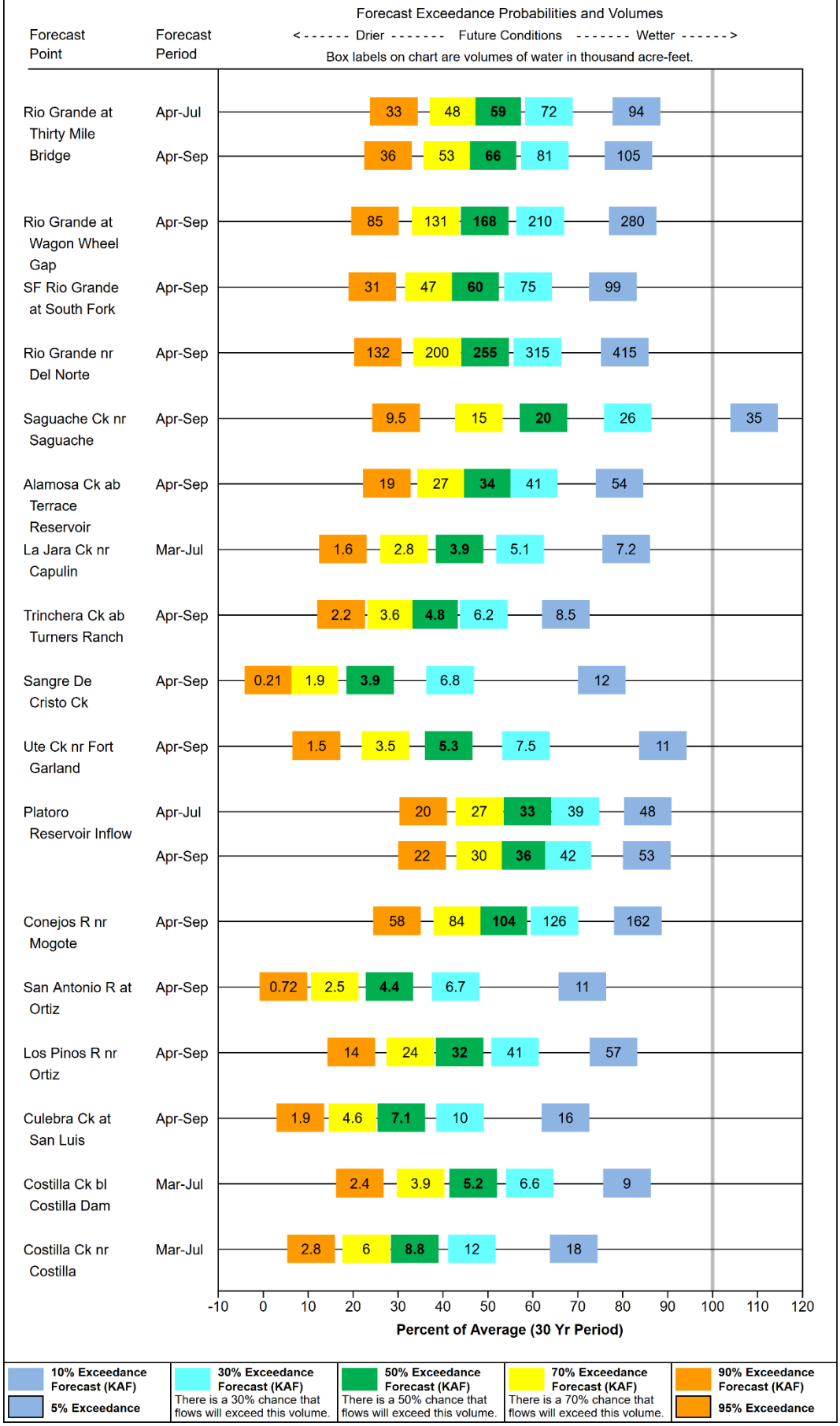
Reservoir Storage End of December 2017

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
CONTINENTAL RESERVOIR	10.8	9.0	3.8	27
PLATORO RESERVOIR	23.3	15.6	24.0	60
RIO GRANDE RESERVOIR	25.8	24.8	14.8	51
SANCHEZ RESERVOIR	21.2	9.2	27.5	103
SANTA MARIA RESERVOIR	18.9	16.5	10.4	45
TERRACE RESERVOIR	7.5	4.9	5.5	18
BEAVER RESERVOIR	3.3	3.1	4.1	5
BASINWIDE	110.7	83.1	90.1	308.5
Number of Reservoirs	7	7	7	7

UPPER RIO GRANDE BASIN

Water Supply Forecasts

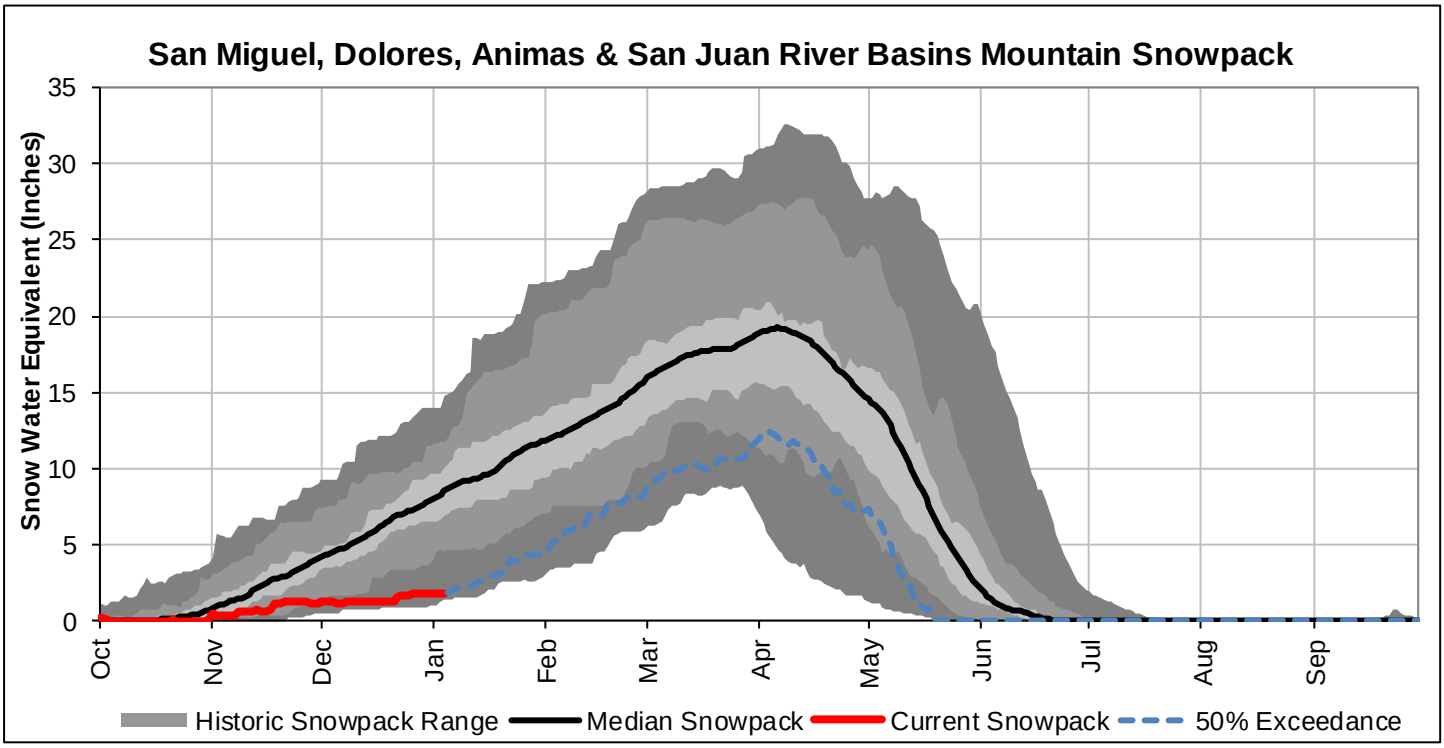
January 1, 2018



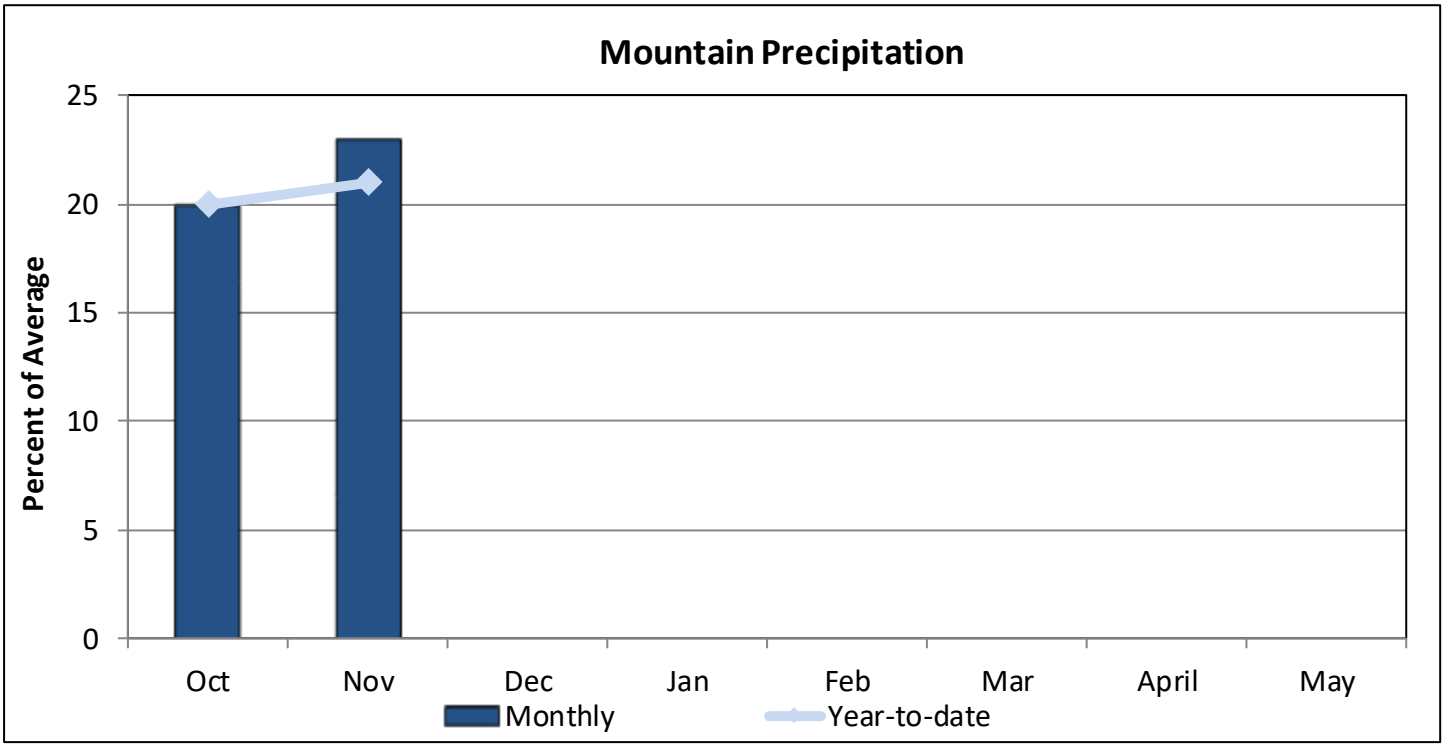
SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN RIVER BASINS

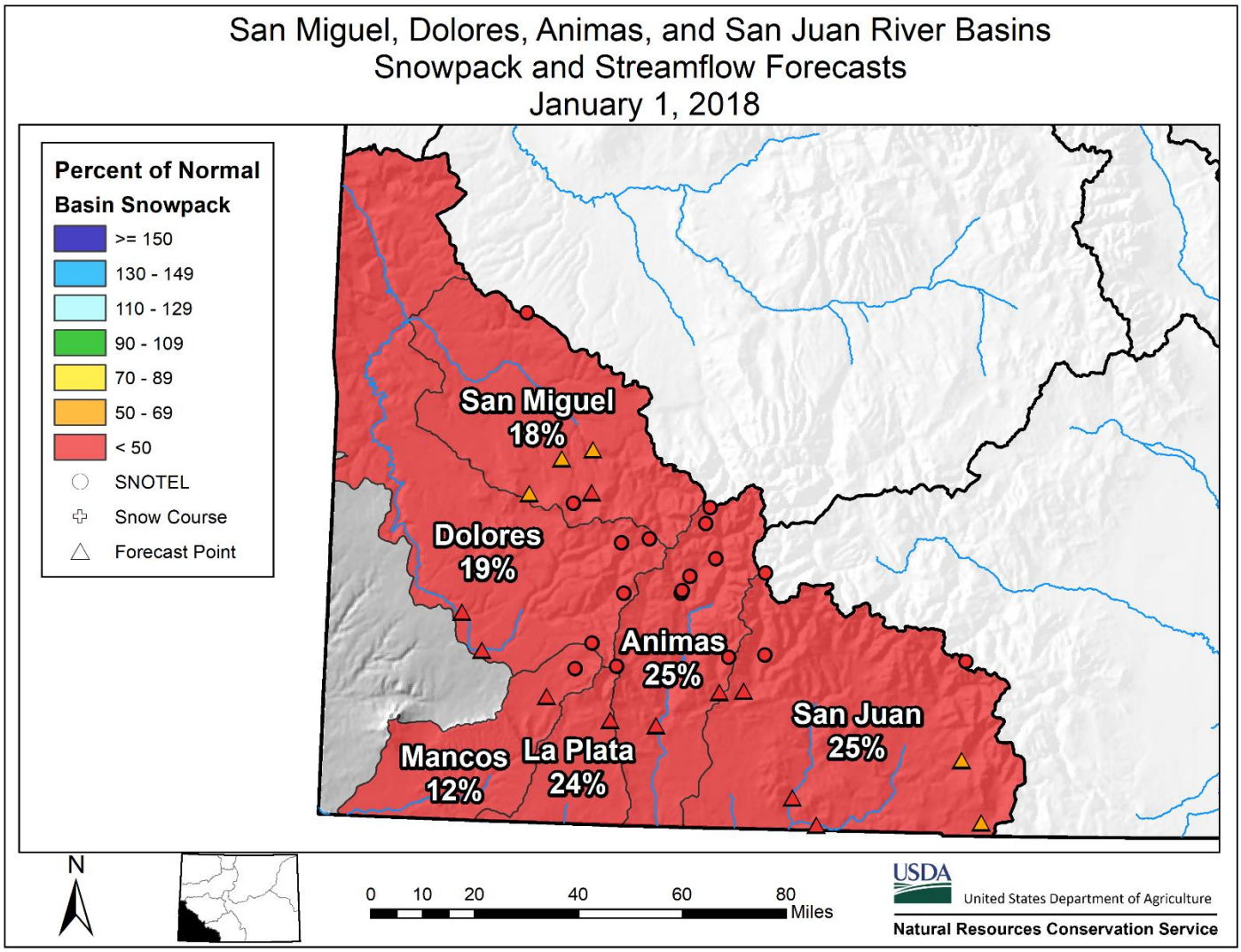
January 1, 2018

Snowpack in the combined southwest river basins is below normal at 23% of median. Precipitation for December was 15% of average which brings water year-to-date precipitation to 19% of average. Reservoir storage at the end of December was 105% of average compared to 114% last year. Current streamflow forecasts range from 56% of average for the inflow to Lilylands Reservoir to 36% for the Piedra River near Arboles.



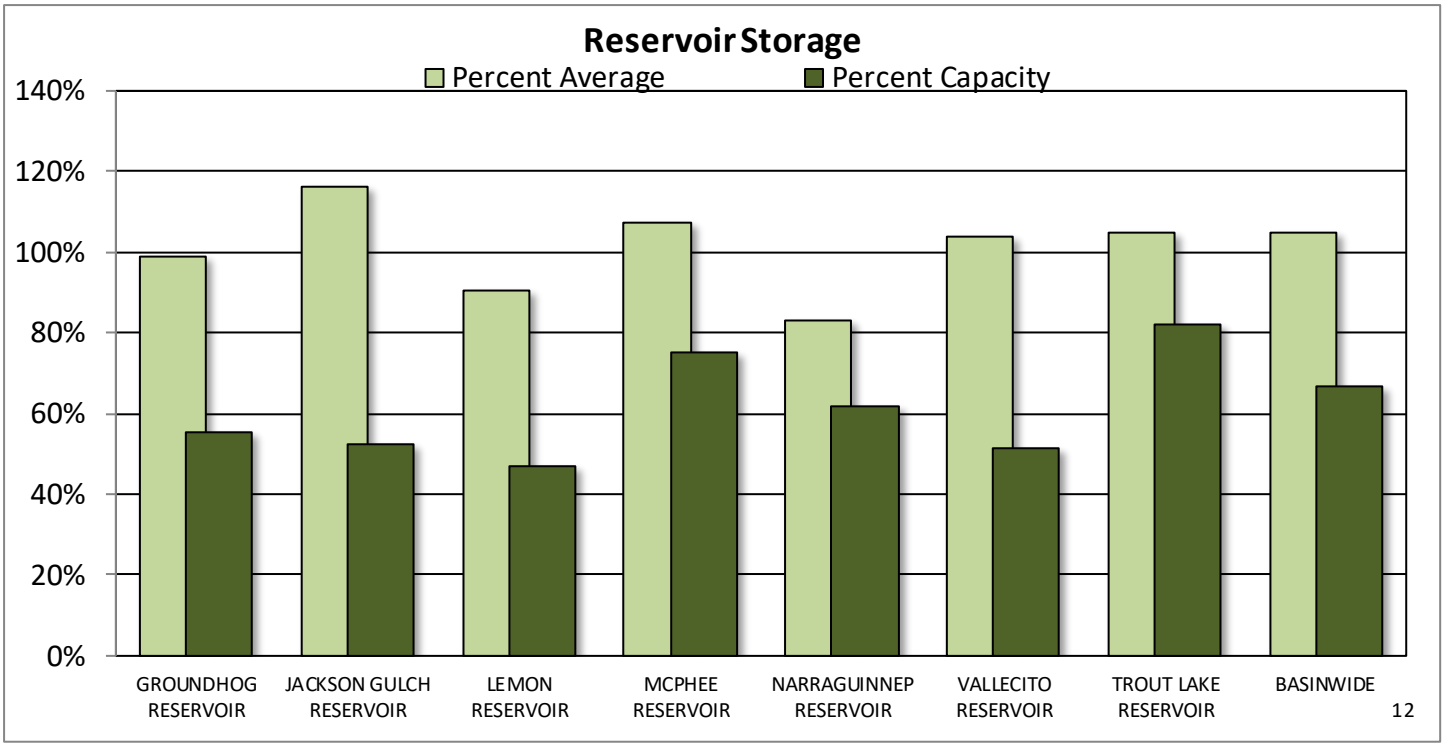
*SWE values calculated using daily SNOTEL data only





Watershed Snowpack Analysis January 1, 2018	# of Sites	% Median	Last Year % Median
ANIMAS RIVER BASIN	9	25%	113%
DOLORES RIVER BASIN	5	19%	142%
SAN MIGUEL RIVER BASIN	3	18%	130%
SAN JUAN RIVER BASIN	3	25%	108%
Basin-Wide Total	**19**	**23%**	**120%**

*SWE values calculated using first of month SNOTEL data and snow course measurements



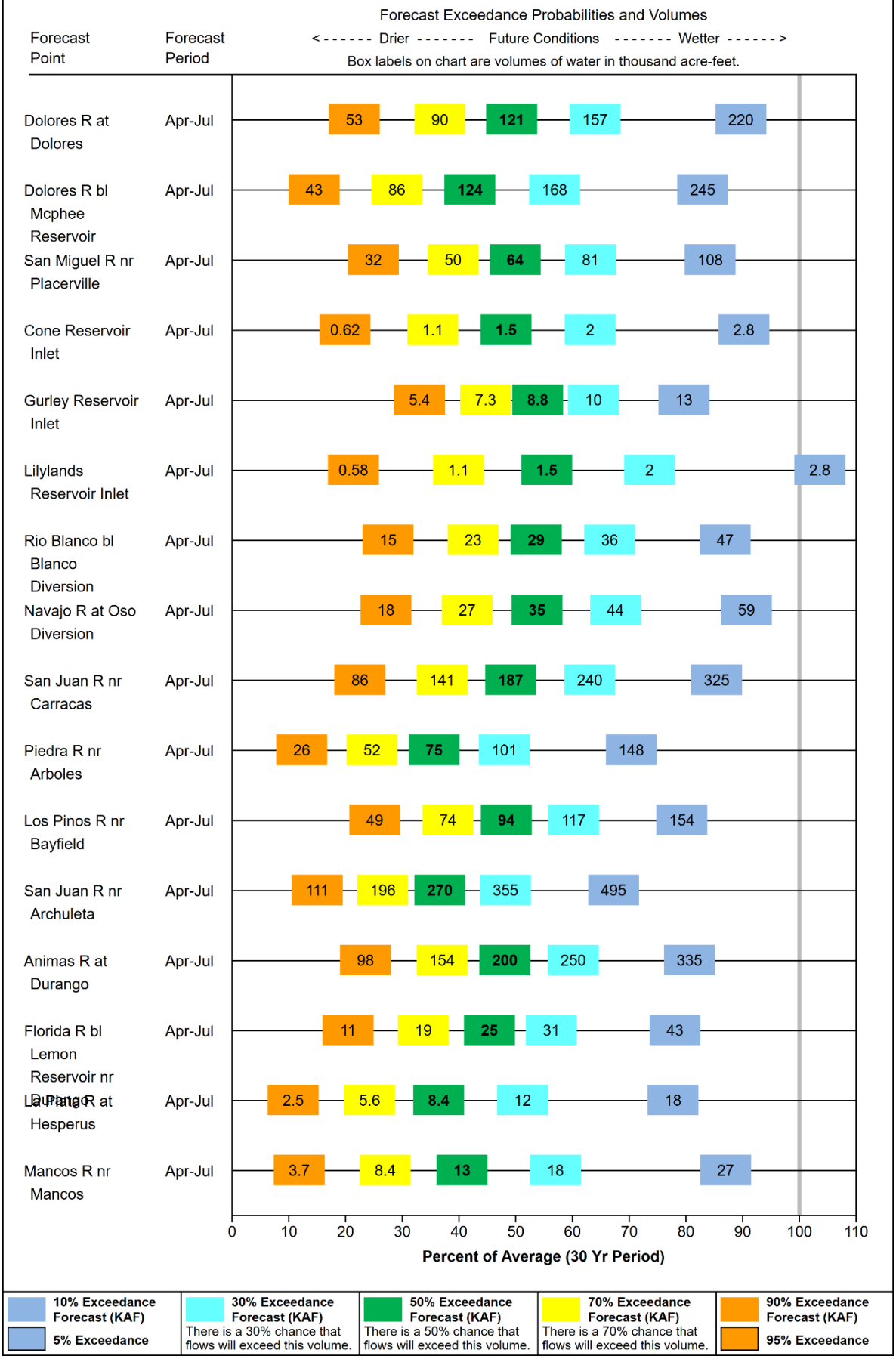
Reservoir Storage End of December 2017

Reservoir	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
GROUNDHOG RESERVOIR	12.1	18.1	12.3	22
JACKSON GULCH RESERVOIR	5.2	5.1	4.5	10
LEMON RESERVOIR	18.7	20.6	20.7	40
MCPHEE RESERVOIR	285.5	294.4	265.6	381
NARRAGUINNEP RESERVOIR	11.7	15.5	14.1	19
VALLECITO RESERVOIR	64.9	84.3	62.4	126
TROUT LAKE RESERVOIR	2.6	3.2	2.5	3
BASINWIDE	400.8	441.3	382.1	601.2
Number of Reservoirs	7	7	7	7

SAN MIGUEL-DOLORES-ANIMAS-SAN JUAN RIVER BASINS

Water Supply Forecasts

January 1, 2018



How to Read Snowpack Graphs

The graphs show snow water equivalent (SWE) (in inches), using daily SNOTEL data. for the October 1 through September 30 water year. Basin "observed" SWE values are computed using SNOTEL sites which are characteristic of the snowpack of the particular basin. The SWE observations at these sites are averaged and normalized to produce these basin snowpack graphs.

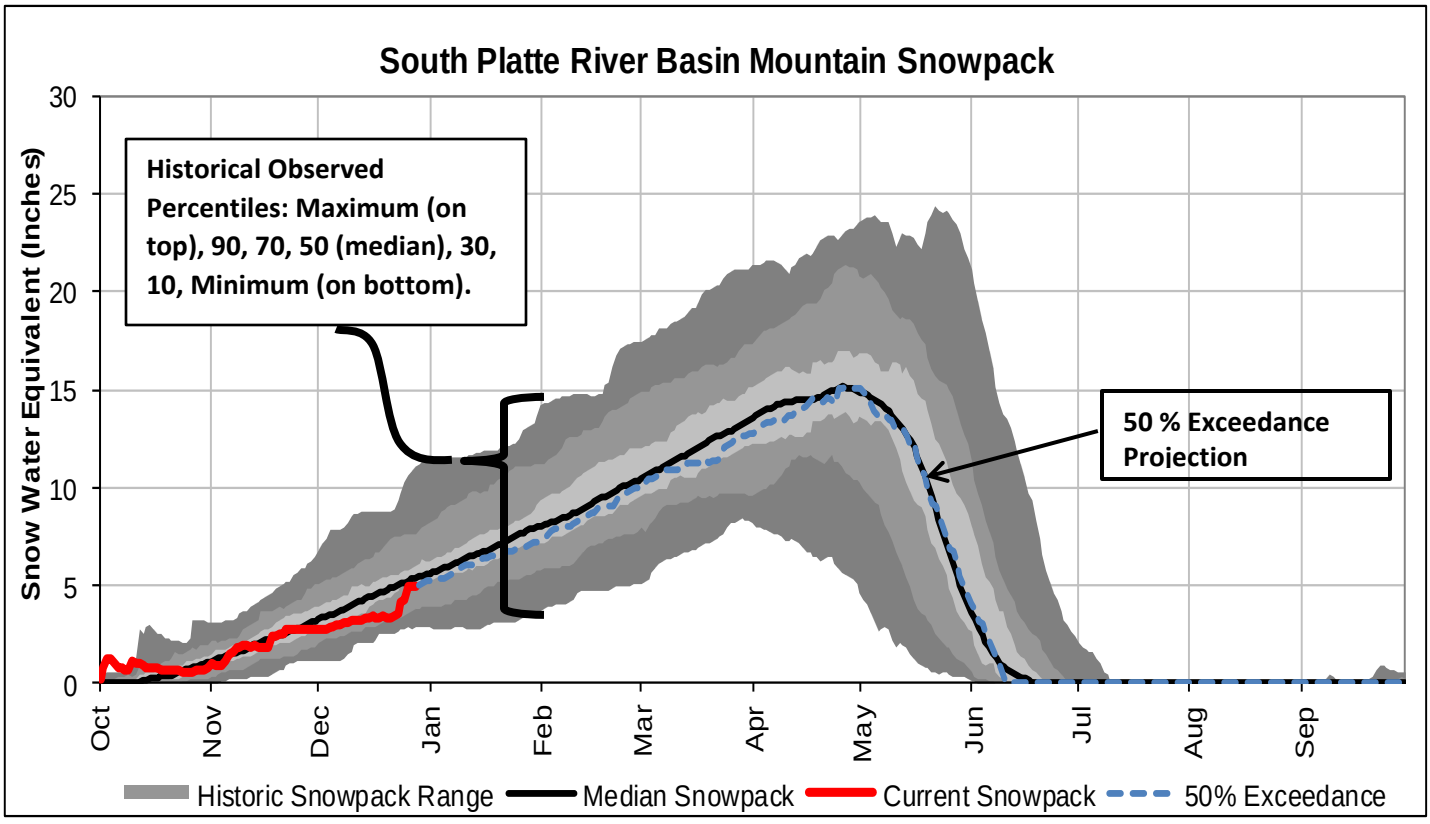
Current water year is represented by the heavy red line terminating on the last day the graphic was updated.

Historical observed percentile range is shown as a gray background area on the graph. Shades of gray indicate maximum, 90 percentile, 70 percentile, 50 percentile (solid black line), 30 percentile, 10 percentile, and minimum for the period of record.

50 % Excedance Projection: The most probabilistic snowpack projection, based on the median snowpack is projected forward from the end of the current period to the end of the current water year.

For more detailed information on these graphs visit:

http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_062291.pdf



How Forecasts Are Made

For more water supply and resource management information, contact:

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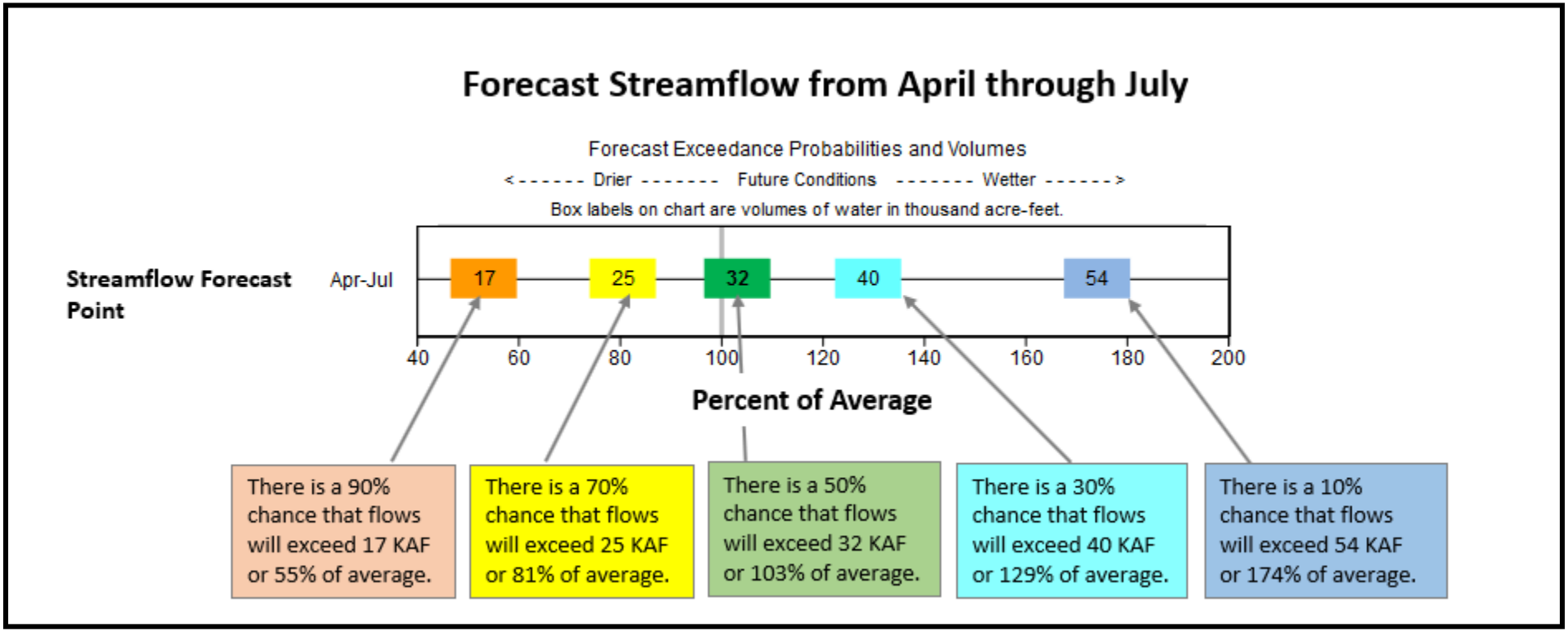
Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

Interpreting the Forecast Graphics

These graphics provide the same information that was contained in the previously published basin forecast tables, but provide a new way to visualize the range of streamflows represented by the forecast exceedance probabilities for each forecast period. The numbers displayed in the box represent the actual forecasted streamflow volume (in KAF) for the given exceedance probability, and the horizontal position of the box represents the percent of average of that streamflow volume. The spread of the forecasts offers an indication of the uncertainty in a given forecast; when the colored boxes are spread far a part, the forecast skill is low and uncertainty is high; when the boxes are close together, the forecast skill is higher and uncertainty lower.



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PO Box 25426
Denver, CO 80225-0426

In addition to the water supply outlook reports, water supply forecast information for the Western United States is available from the Natural Resources Conservation Service and the National Weather Service monthly, January through June. The information may be obtained from the Natural Resources Conservation Service web page at http://www.wcc.nrcs.usda.gov/wsf/westwide.html

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Natural Resources Conservation Service
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